

Australia.

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS
MELBOURNE.

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no. 15
1922

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OFFICIAL

YEAR BOOK

OF THE

COMMONWEALTH OF AUSTRALIA

—
No. 15.—1922.
—

Prepared under Instructions from
The Minister of State for Home and Territories,

BY

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COMMONWEALTH STATISTICIAN.

—
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—



By Authority:

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PREFACE.

By the Constitution of the Commonwealth of Australia, the Commonwealth is empowered "to make laws for the peace, order, and good government of the Commonwealth, with respect to," *inter alia*, "Census and Statistics." In the exercise of the power so conferred, a "Census and Statistics Act" was passed in 1905, and in the year following the "Commonwealth Bureau of Census and Statistics" was created. The first Official Year Book was published early in 1908. The publication here presented is the fifteenth Official Year Book issued under the authority of the Commonwealth Government.

With the exception that certain sections relating to allied subjects have been combined, the general arrangement of the work, which has received wide approval, follows that of previous issues, and is shewn in the synopsis on pp. xi to xxviii immediately following.

In addition, however, to what may be called purely statistical matter, each issue contains special articles dealing with some particular subject or subjects of more or less permanent interest. These cannot of course be repeated year after year, but in some instances a brief condensation is given in subsequent issues. Though many articles in Year Books Nos. 1 to 14 have been reduced to synopses or deleted in the present issue, sufficient indication is given to enable the subject to be traced in previous issues.

The present issue contains a specially-contributed article dealing with "Decimal Coinage." For convenience, this has been placed at the end of Section XXI., "Private Finance."

Amongst new matter contained in the various Sections, mention may be made of the conspectus of Acts relating to Weights and Measures, incorporated in Section XXXI., "Miscellaneous." Sections XXVII. and XXXIII., which, in previous Year Books, dealt respectively with (a) Industrial Unionism and Industrial Legislation, and (b) Labour and Industrial Statistics, have been combined in the present issue into one Section numbered XXVII., under the title of "Labour, Wages, Prices, etc." The information contained in this Section has been re-cast and much new matter has been added, including a reference to the inclusion of the cost of clothing in the determination of the purchasing power of money. A further re-arrangement has been effected by bringing together in Section XXIX., now entitled "The Territories of the Commonwealth," the information published in previous Year Books in Sections XXIX., New Guinea; XXXI., The Commonwealth Seat of Government; XXXII., The Northern Territory; and the sub-sections relating to Nauru and Norfolk Island from the "Miscellaneous Section." The matter in the new Section has been largely re-written.

The full text of the Commonwealth Constitution Act and Amendments appears on pages 8 to 26.

Recent information or returns which have come to hand since the various Sections were sent to press may be found in the Appendix, p. 1097.

The material contained in each Year Book is always carefully examined, but it would be idle to hope that all error has been avoided. The Commonwealth Statistician desires to express appreciation of the opportunity afforded him of improving the Year Book, by those who have been kind enough to point out defects or make suggestions.

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I desire to express my cordial thanks to the State Statisticians, to the responsible officers of the various Commonwealth and State Departments, and to others, who have kindly, and often at considerable trouble, supplied desired information.

In conclusion, I desire to express my keen appreciation of the valuable work performed by Mr. Stonham, the editor of the Year Book, and also of the services rendered by the officers in charge of the various branches of the Commonwealth Bureau of Census and Statistics, upon whom has devolved the duty of revising, or in some cases of re-writing the Sections relative to their respective branches.

CHAS. H. WICKENS,
Commonwealth Statistician.

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS,
Melbourne, 30th November, 1922.

INDEX TO SPECIAL ARTICLES, ETC., APPEARING IN PREVIOUS ISSUES.

These articles have appeared in former issues of the Commonwealth Year Book, but, owing to exigencies of space, they are not included in this publication.

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STATISTICAL SUMMARY.

STATISTICAL SUMMARY FOR THE COMMONWEALTH, 1871 TO 1921.

Heading.		Years.					
		1871.	1881.	1891.	1901.	1911.	1921.
Population ..	Males	928,918	1,247,059	1,736,617	2,004,836	2,382,224	2,751,622
	Females	771,970	1,059,677	1,504,368	1,820,077	2,191,644	2,660,696
	Total	1,700,888	2,306,736	3,240,985	3,824,913	4,573,868	5,412,318
Births ..	No.	63,625	80,004	110,187	102,945	122,193	136,406
	Rate	38.00	35.26	34.47	27.16	27.21	25.45
Deaths ..	No.	22,175	33,327	47,430	46,330	47,869	56,389
	Rate	13.24	14.69	14.84	12.22	10.66	10.50
Marriages ..	No.	11,623	17,244	23,862	27,753	39,482	51,552
	Rate	6.94	7.60	7.47	7.32	8.79	9.62
Agriculture—							
Wheat ..	Area, acs.	1,279,778	3,002,064	3,335,528	5,115,965	7,427,834	9,072,167
	Yld., bshl.	11,917,741	21,443,862	25,675,265	38,561,619	71,636,347	145,873,850
	Av. "	9.31	7.14	7.70	7.54	9.64	16.08
Oats ..	Area, acs.	225,492	194,816	246,129	461,430	616,857	936,996
	Yld., bshl.	4,251,630	4,795,897	5,726,256	9,789,854	9,561,771	18,521,077
	Av. "	18.85	24.62	23.27	21.22	15.50	19.77
Barley ..	Area, acs.	48,164	75,864	68,068	74,511	116,466	334,747
	Yld., bshl.	726,158	1,353,380	1,178,560	1,519,819	2,056,836	7,155,376
	Av. "	15.08	17.84	17.31	20.40	17.68	21.38
Maize ..	Area, acs.	142,078	165,777	284,428	294,849	340,065	284,283
	Yld., bshl.	4,576,635	5,726,266	9,261,922	7,034,786	8,939,855	7,253,782
	Av. "	32.21	34.54	32.56	23.86	26.29	26.53
Hay ..	Area, acs.	303,274	768,388	942,166	1,688,402	2,518,288	3,233,189
	Yld., tons	375,871	767,194	1,067,255	2,024,608	2,667,973	4,686,366
	Av. "	1.24	1.00	1.13	1.20	1.14	1.45
Potatoes(a) ..	Area, acs.	67,911	76,265	112,884	109,665	130,463	140,195
	Yld., tons	212,896	243,216	380,477	322,524	301,489	373,056
	Av. "	3.13	3.19	3.37	2.94	2.31	2.66
Sugar Cane(d) ..	Area, acs.	11,576	19,708	45,444	86,950	101,010	174,001
	Yld., tons	176,632	349,627	737,573	1,367,802	1,682,250	1,470,768
	Av. "	15.25	17.74	16.23	15.73	16.85	15.54
Vineyards ..	Area, acs.	16,253	14,570	48,882	63,677	60,602	81,165
	Wine, gal.	2,104,000	1,488,000	3,585,000	5,816,087	4,975,147	11,014,220
Total value all agricultural production ..	£	8,941,000	15,519,000	16,480,000	23,835,000	38,774,000	112,796,000
Pastoral, dairying, etc.—							
Live Stock ..	Sheep No.	40,072,955	65,092,719	106,421,068	72,040,211	93,003,521	77,897,555
	Cattle "	4,277,228	8,010,991	11,112,112	8,491,428	11,828,954	13,499,737
	Horses "	701,530	1,088,029	1,584,737	1,620,420	2,279,027	2,415,510
	Pigs "	586,017	703,188	845,888	931,309	1,110,721	764,406
Wool prod., lb. greasy		179,000,000	332,759,000	631,587,000	543,131,661	721,298,288	547,502,715
Butter production lbs.	(c)	(c)	(c)	47,433,564	101,671,066	211,573,745	208,081,864
Cheese ..	(c)	(c)	(c)	19,146,929	11,575,692	15,856,712	24,160,524
Bacon and ham ..	(c)	(c)	(c)	(c)	34,020,629	53,264,652	50,250,487
Total estimated value of pastoral and dairying production ..	£	20,736,000	29,538,000	39,256,000	36,890,000	69,832,000	146,437,000
Mineral production—							
Gold ..	£	7,916,627	5,194,390	5,281,309	14,017,508	10,551,624	5,308,092
Silver and lead ..	£	36,528	45,622	3,736,352	2,367,687	3,022,177	763,218
Copper ..	£	830,242	714,003	367,373	2,215,431	2,564,278	2,657,756
Tin ..	£	24,020	1,145,689	560,502	448,234	1,209,973	1,125,084
Zinc ..	£	369	200	2,979	4,067	1,415,169	249,780
Coal ..	£	330,759	637,865	1,914,026	2,602,770	3,929,673	9,508,176
Total value all mineral production ..	£	9,190,330	7,820,290	12,108,759	21,922,665	23,494,324	22,456,943
Forestry production—							
Quantity of local timber sawn or hewn							
1,000 sup. ft.	(c)	(c)	(c)	452,131	619,140	611,972	
Manufactories—							
No. of factories ..					14,455	16,291	17,113
Hands employed ..	No.				311,710	376,734	386,639
Wages paid ..	£				27,528,703	52,115,558	62,931,718
Total value of output ..	£	(b)	(b)	(b)	(b)	133,022,090	292,536,608
Value added in process of manufacture ..	£					54,017,714	104,813,731
							118,720,237

(a) Partly estimated 1871 and 1881. (b) Owing to variation in classification and lack of information effective comparison is impossible. (c) Information not available. (d) Area of productive cane.

STATISTICAL SUMMARY FOR THE COMMONWEALTH—continued.

Heading.	Years.						
	1871.	1881.	1891.	1901.	1911.	1920.	1921.
Shipping—							
Oversea vessels { No. ent. & cleared { ton.	2,748 1,312,642	3,284 2,549,364	3,778 4,726,307	4,028 6,541,991	4,174 9,984,801	2,981 8,086,507	3,674 9,503,018
Commerce—							
Imports oversea £	17,017,000	29,067,000	37,711,000	42,434,000	66,967,488	163,801,826	101,063,661
" per head £	10/3/3	12/16/2	11/16/0	11/3/11	14/18/2	30/5/7	18/6/9
Exports oversea £	21,725,000	27,528,000	36,043,000	49,696,000	79,482,258	132,158,912	127,949,455
" per head £	12/19/6	12/2/8	11/5/8	13/2/2	17/13/10	24/8/5	23/4/5
Total oversea trade £	38,742,000	56,595,000	73,754,000	92,130,000	146,449,746	295,960,738	229,013,116
" per head £	23/2/9	24/18/10	23/1/6	24/6/1	32/12/0	54/14/-	41/11/2
Customs and excise duties .. £	..	4,809,326	7,440,869	8,656,530	13,515,005	31,744,390	27,546,605
" per head, £	..	2/2/5	2/6/7	2/5/8	2/19/2	5/17/4	5/0/3
Principal Oversea Ex-ports(a)—							
Wool { lbs. (greasy) £	176,635,800	328,369,200	619,259,800	518,018,100	720,364,900	5,541,288	9,277,900
" .. centsals £	9,459,629	13,173,028	19,940,029	15,237,454	26,071,193	33,780,050	47,975,289
Wheat { £	479,954	3,218,792	5,876,875	12,156,035	33,088,704	46,075,130	59,963,351
" .. £	193,732	1,189,762	1,938,864	2,774,643	9,641,608	34,473,350	28,644,175
Flour { tons £	12,988	49,549	33,363	96,814	175,391	229,725	359,737
" .. £	170,415	519,635	323,423	589,604	1,391,529	4,948,756	5,519,917
Butter { lbs. £	1,812,700	1,298,800	4,239,500	34,607,400	101,722,100	924,209	1,273,474
" .. £	45,813	39,383	206,868	1,451,168	4,637,362	11,067,104	7,968,078
Skins and hides £	100,123	316,878	873,695	1,250,938	3,227,236	3,441,949	3,136,840
Tallow .. £	914,278	644,149	571,069	877,745	1,935,838	1,348,714	1,430,057
Meats £	566,780	362,965	460,894	2,611,244	4,303,159	7,019,774	5,541,102
Timber (undressed) £	42,586	118,117	38,448	731,301	1,023,960	1,277,892	1,161,825
Gold £	7,184,833	6,445,365	5,703,532	14,315,741	12,045,766	5,314,081	3,477,736
Silver and lead £	37,891	57,954	1,932,278	2,250,253	3,212,584	855,756	2,589,322
Copper .. £	598,538	676,515	417,687	1,619,145	2,345,661	2,424,624	707,314
Coal .. £	134,355	361,081	645,972	986,957	900,622	2,238,996	1,099,899
Govt. Railways—							
Lgh. of line open. mls.	970	3,832	9,541	12,577	16,078	23,147	23,296
Capital cost £	10,269,796	42,741,350	99,764,090	123,587,000	152,194,603	231,115,732	237,479,698
Gross revenue £	1,102,650	3,910,122	8,654,085	11,038,000	17,847,837	32,109,319	35,936,960
Working expenses £	608,332	2,141,735	5,630,182	7,149,000	10,945,727	24,768,949	22,969,554
Per cent. of work'g ex- penses on earnings %	55.17	54.77	65.06	64.76	61.33	77.14	83.39
Postal—							
Letters and postcards dealt with No.	24,382,000	67,640,000	157,297,000	220,853,000	453,063,000	583,459,344	569,343,456
" .. per head ..	14.54	29.61	49.07	58.26	100.90	110.01	104.36
Newspapers dealt with No.	3,336,000	38,063,000	85,280,000	102,727,000	141,638,000	131,085,136	130,882,425
" .. per head ..	7.95	16.66	26.61	27.10	31.54	24.73	23.99
Cheque-paying Banks—							
Note circulation £	2,456,487	3,978,711	4,417,269	3,406,175	876,428	218,465	211,187
Coin & bullion held £	6,168,869	9,108,243	16,712,923	19,737,572	30,024,225	21,505,867	22,092,371
Advances .. £	26,039,573	57,732,824	129,741,583	89,167,499	116,769,133	237,535,100	233,214,626
Deposits .. £	21,856,959	53,849,455	98,345,338	90,965,530	147,103,081	266,515,229	273,866,737
Savings Banks—							
Number of depositors	100,713	250,070	614,741	964,553	1,600,112	3,171,230	3,327,456
Total deposits £	3,193,285	7,854,480	15,536,592	30,882,645	59,393,682	143,357,487	154,396,051
Aver. per depositor £	31/14/2	31/8/2	25/5/6	32/0/4	37/2/4	45/4/1	46/8/0
" .. head of " .. population £	1/18/9	3/10/5	4/18/7	8/3/0	13/8/5	26/16/4	28/0/4
State Schools—							
Number of schools ..	2,502	4,494	6,231	7,012	8,060	9,304	
Teachers .. No.	4,641	9,028	12,564	14,500	16,971	25,559	
Enrolment ..	236,710	432,320	561,153	638,478	638,850	801,405	
Aver. attendance ..	137,767	255,143	350,773	450,246	463,799	632,182	

(a) Australian produce, except gold, which includes re-exports.

(b) Decrease due to prohibition of re-issue.

CHRONOLOGICAL TABLE.

CHRONOLOGICAL TABLE OF CHIEF EVENTS SINCE THE ESTABLISHMENT OF SETTLEMENT IN AUSTRALIA.

NOTE.—The Government was centralised in Sydney, New South Wales, up to 1825, when Tasmania (Van Diemen's Land) was made a separate colony. In the Table, the names now borne by the States serve to indicate the localities.

Year.

- 1788 N.S.W.—Arrival of "First Fleet" at Botany Bay. Land in vicinity being found unsuitable for settlement, the expedition moved to Sydney Cove (now Port Jackson). Formal possession of Port Jackson taken by Captain Phillip on 26th January. Formal proclamation of colony on 7th February. Population, 1,024. Branch settlement established at Norfolk Island. French navigator Lapérouse visited Botany Bay. First cultivation of wheat and barley. First grape vines planted.
- 1789 N.S.W.—First wheat harvest at Parramatta, near Sydney. Discovery of Hawkesbury River. Outbreak of small-pox amongst aborigines.
- 1790 N.S.W.—"Second Fleet" reached Port Jackson. Landing of the New South Wales Corps. Severe suffering through lack of provisions. First circumnavigation of Australia by Lieut. Ball.
- 1791 N.S.W.—First Exploration Map of Australia published. Arrival of "Third Fleet." Territorial seal brought by Governor King.
- 1792 N.S.W.—Visit of *Philadelphia*, first foreign trading vessel. Population, 4,203.
- 1793 N.S.W.—First free immigrants arrived in the *Bellona*. First Australian church opened at Sydney. Tas.—D'Entrecasteaux discovered the Derwent River.
- 1794 N.S.W.—Establishment of settlement at Hawkesbury River.
- 1795 N.S.W.—Erection of the first printing press at Sydney. Descendants of strayed cattle discovered at Cowpastures, Nepean River.
- 1796 N.S.W.—First Australian theatre opened at Sydney. Coal discovered by fishermen at Newcastle.
- 1797 N.S.W.—Introduction of merino sheep from Cape of Good Hope.
- 1798 Tas.—Tasmania proved an island by voyage of Bass and Flinders.
- 1800 N.S.W.—First export of coal. First Custom House in Australia established at Sydney. Flinders' charts published. First issue of copper coin. Population, 5,995.
- 1801 N.S.W.—First colonial manufacture of blankets and linen.
- 1802 Vic.—Discovery of Port Phillip by Lieut. Murray. S.A.—Discovery of Spencer's and St. Vincent Gulfs by Flinders. Q'land.—Discovery of Port Curtis and Port Bowen by Flinders.
- 1803 N.S.W.—First Australian wool taken to England by Capt. Macarthur. Issue of "The Sydney Gazette," first Australian newspaper. Vic.—Attempted colonisation of Port Phillip by Collins. Discovery of Yarra by Grimes. Tas.—First settlement formed at Risdon by Lieut. Bowen.
- 1804 N.S.W.—Insurrection of convicts at Castle Hill. Vic.—Abandonment of settlement at Port Phillip. Tas.—Foundation of settlement at Hobart by Collins, and at Yorktown by Colonel Paterson.
- 1805 N.S.W.—First extensive sheep farm established at Camden by Capt. Macarthur. Portion of convicts from Norfolk Island transferred to Tasmania.
- 1806 N.S.W.—Shortage of provisions. Floods. Tas.—Settlement at Launceston.
- 1807 N.S.W.—Final shipment of convicts from Norfolk Island. First shipment of merchantable wool (245 lbs.) to England.
- 1808 N.S.W.—Deposition of Governor Bligh.
- 1810 N.S.W.—First post-office established at Sydney. First race meeting in Australia at Hyde Park, Sydney. Population, 11,590. Tas.—First Tasmanian newspaper printed.
- 1813 N.S.W.—Passage across Blue Mountains discovered by Wentworth, Lawson, and Blaxland. Macquarie River discovered by Evans.

Year.

- 1814 N.S.W.—Australia, previously known as “New Holland,” received present name on recommendation of Flinders. Creation of Civil Courts.
- 1815 N.S.W.—Town of Bathurst founded by Governor Macquarie. First steam engine in Australia erected at Sydney. Lachlan River discovered by Evans. Tas.—Arrival of first immigrant ship with free settlers. First export of wheat to Sydney. Port Darvey and Macquarie Harbour discovered by Capt. Kelly.
- 1816 N.S.W.—Botanic Garden formed at Sydney.
- 1817 N.S.W.—Oxley's first exploration inland. Discovery of Lakes George and Bathurst and the Goulburn Plains by Meehan and Hume. First bank in Australia opened at Sydney. Tas.—Great prosperity in wool and whaling industries.
- 1818 N.S.W.—Cessation of free immigration. Liverpool Plains, and the Peel, Hastings, and Manning Rivers discovered by Oxley, and Port Essington by Captain King.
- 1819 N.S.W.—First Australian Savings Bank at Sydney opened.
- 1820 N.S.W.—Foundation of Campbelltown. Clyde River discovered by Lieut. Johnson. Tas.—First importation of pure merino sheep.
- 1821 N.S.W.—Foundation of Philosophical (now Royal) Society. Population, 35,610. Tas.—Establishment of penal settlement at Macquarie Harbour. First Circuit Court held at Hobart.
- 1822 N.S.W.—Formation of Agricultural Society of N.S.W.
- 1823 N.S.W.—First Australian Constitution. Discovery of gold at Fish River by Assistant-Surveyor McBrien. Arrival in Sydney of Dr. John Dunmore Lang Qld.—Brisbane River discovered by Oxley.
- 1824 N.S.W.—Became a Crown Colony. Executive Council formed. Establishment of Supreme Court at Sydney, and introduction of trial by jury. First Australian Enactment (Currency Bill) passed by the Parliament at Sydney. Proclamation of freedom of the press. First land regulations. First manufacture of sugar. Vic.—Hume and Hovell, journeying overland from Sydney, arrived at Corio Bay. Qld.—Penal settlement founded at Moreton Bay (Brisbane). Fort Dundas Settlement formed at Melville Island, N. Terr.
- 1825 Tas.—Proclamation of Independence of Van Diemen's Land (Tasmania) and appointment of a nominated Legislative Council for the new colony.
- 1826 N.S.W.—Illawarra district, settlement at. Vic.—Settlement at Corinella, Western Port, formed by Captain Wright. W.A.—Military Settlement founded at King George's Sound, Albany, by Major Lockyer.
- 1827 N.S.W.—Colony became self-supporting. Feverish speculation in land and stock. Qld.—Darling Downs and the Condamine River discovered by Allan Cunningham. Fort Wellington established at Raffles Bay, N. Terr. Tas.—Copper ore discovered at Macquarie Harbour.
- 1828 N.S.W.—Second constitution. First Census. Sturt's expedition down Darling River. Cotton first grown in Sydney Botanical Gardens. Gas first used at Sydney. Richmond and Clarence Rivers discovered by Captain Rous. Vic.—Abandonment of settlement at Western Port. Qld.—Cunningham discovered a route from Brisbane to the Darling Downs, and explored Brisbane River to its source. Tas.—First land sales.
- 1829 N.S.W.—Sturt's expedition down Murrumbidgee River. New South Wales Act proclaimed. All English law, so far as circumstances of the Colony allowed, came into force. W.A.—Foundation of settlement at Swan River, under command of Lieut.-Governor Stirling. Perth also founded.
- 1830 N.S.W.—Insurrection of convicts at Bathurst. Sturt, voyaging down Murrumbidgee and Murray Rivers, arrived at Lake Alexandrina. Qld.—Murder of Captain Logan by convicts at Brisbane. Tas.—Trouble with natives. Black line organised to force aborigines into Tasman's Peninsula, but failed. Between 1830 and 1835, however, George Robinson, by friendly suasion, succeeded in gathering the small remnant of aborigines (203) into settlement on Flinders Island.
- 1831 N.S.W.—Crown lands first disposed of by public competition. Mitchell's explorations north of Liverpool Plains. Arrival at Sydney of first steamer, *Sophia Jane*, from England. S.S. *Surprise*, first steamship built in Australia, launched at Sydney. First coal shipped from Australian Agricultural Company's workings at Newcastle, N.S.W. First assisted immigration to N.S.W. S.A.—Adelaide district discovered by Captain Barker. Murder of Barker by aborigines at Lake Alexandrina. Wakefield's first colonisation committee. W.A.—Appointment of Executive and Legislative Council. First newspaper—“Fremantle Observer.” Lord Ripon's land regulations in N.S.W., W.A., and Tas.

Year.

- 1832 N.S.W.—Savings Bank of N.S.W. established.
- 1833 N.S.W.—First School of Arts established at Sydney.
- 1834 N.S.W.—First settlement at Twofold Bay. Vic.—Settlement formed at Portland Bay by Henty Bros. Qld.—Leichhardt reached Gulf of Carpentaria. S.A.—Formation of the South Australian Association. Imperial Act Colonisation of S.A. W.A.—Severe reprisals against natives at Pinjarrah.
- 1835 N.S.W.—Establishment of depot at Fort Bourke on the Darling River, by Mitchell. Vic.—John Batman arrived at Port Phillip; made treaty with the natives for 600,000 acres of land; claim afterwards disallowed by Imperial Government. John Pascoe Fawkner founded Melbourne.
- 1836 N.S.W.—Mitchell's overland journey from Sydney to Cape Northumberland, Vic., "Squatting" formally recognised. Vic.—Proclamation of Port Phillip district as open for settlement. Captain Lonsdale first Resident Magistrate. S.A.—Settlement founded at Adelaide under Governor Hindmarsh.
- 1837 N.S.W.—Appointment in London of Select Committee on Transportation. Vic.—Melbourne planned and named by Governor Bourke. First Victorian post-office established in Melbourne. First sale of Crown lands in Melbourne. First overlanders from Sydney arrived at Port Phillip. S.A.—Adelaide planned by Captain Light. First newspaper published, and first sale of Crown lands.
- 1838 N.S.W.—Discontinuance of assignment of convicts. Drought and failure of crops. Frenzied speculation. Vic.—First Victorian paper published at Melbourne. Qld.—Settlement of German missionaries at Brisbane. S.A.—"Overlanding" of cattle from Sydney to Adelaide along the Murray route by Hawden and Bonney. Settlement at Port Essington, Northern Territory, formed by Captain Bremer.
- 1839 N.S.W.—Gold found at Vale of Clwydd by Count Strzelecki. Vic.—Appointment of Mr. C. J. La Trobe as Superintendent Port Phillip district. S.A.—Lake Torrens discovered by Eyre. Port Darwin discovered by Captain Stokes. W.A.—Murchison River discovered by Captain Grey.
- 1840 N.S.W.—Abolition of transportation to New South Wales. Land regulations—proceeds of sales to be applied to payment for public works and expenditure on immigration. Foundation of viticultural industry. Monetary crisis. Vic.—Determination of northern boundary. Colonists desire separation. Qld.—Penal settlement broken up and Moreton Bay district thrown open. S.A.—Incorporation of Adelaide. Eyre began his overland journey from Adelaide to King George's Sound. Tas.—Visit of the *Erebus* and *Terror* to Hobart. Sir J. D. Hooker investigated the island flora.
- 1841 N.S.W.—Gold found near Hartley by Rev. W. B. Clarke. Separation of New Zealand. W.A.—Completion of Eyre's overland journey from Adelaide to King George's Sound. Tas.—Renewal of transportation.
- 1842 N.S.W.—Incorporation of Sydney. Vic.—Incorporation of Melbourne. S.A.—Discovery of copper at Kapunda.
- 1843 N.S.W.—First Representative Constitution. First manufacture of tweed. Financial crisis. Qld.—Moreton Bay granted legislative representation. Tas.—Agitation against further introduction of convicts.
- 1844 S.A.—Sturt's last expedition inland. Qld.—Leichhardt's expedition from Condamine River to Port Essington.
- 1845 N.S.W.—Mitchell's explorations on the Barcoo. Qld.—Explorations by Mitchell and Kennedy. S.A.—Discovery of the Burra copper deposits. Sturt discovered Cooper's Creek. W.A.—First steam vessel (*H.M.S. Driver*) visited Fremantle.
- 1846 N.S.W.—Mr. Gladstone proposed to revive transportation. Initiation of meat preserving. Qld.—Foundation of settlement at Port Curtis. S.A.—Proclamation of North Australia. W.A.—Foundation of New Norcia Mission.
- 1847 N.S.W.—Crown Land Leases Act. Iron smelting commenced near Berrima. Overland mail established between Sydney and Adelaide. Vic.—Melbourne created a City. Qld.—Explorations by Leichhardt, Burnett, and Kennedy. W.A.—Issue of regulations for leasing Crown lands. First export of guano.
- 1848 N.S.W.—Attempts to revive transportation. Influx of Chinese. Qld.—Leichhardt's last journey. Kennedy speared by the blacks at York Peninsula. Chinese brought in as shepherds. W.A.—Copper and lead discovered in the Champion Bay district by the Messrs. Gregory.

Year.

- 1849 N.S.W.—Indignation of colonists at arrival of convict ship *Hashemy*. Exodus of population to goldfields of California. Vic.—*Randolph* prevented from landing convicts. Qld.—Assignment of convicts per *Hashemy* to squatters on Darling Downs. W.A.—Commencement of transportation to Western Australia.
- 1850 N.S.W.—Final abolition of transportation. First sod of first Australian railway turned at Sydney. University incorporated. Vic.—Gold discovered at Clunes by Hon. W. Campbell. Representative government granted. S.A.—Representative government granted. W.A.—Pearl oysters found by Lieut. Helpman at Saturday Island Shoal. Tas.—Representative government granted. Discovery of coal at the Don and Mersey.
- 1851 N.S.W.—Payable gold discovered by Hargraves at Lewis Ponds and Summerhill Creeks. Telegraph first used. Vic.—Separation of Port Phillip—erected into independent colony under the name of Victoria. Discovery of gold in various localities. "Black Thursday," 6th Feb., a day of intense heat, when several persons died and a vast amount of damage to property was occasioned by fires. Qld.—Agitation for separation from New South Wales. S.A.—Financial depression. Tas.—Serious exodus of population to goldfields on mainland. W.A.—Proclamation of Legislative Council Act.
- 1852 N.S.W.—Destruction of Gundagai by flood—77 lives lost. Arrival of the *Chusan*, first P. and O. mail steamer from England. S.A.—First steamer ascends the Murray River to the junction with the Darling. Tas.—Meeting of first elective Council protests against transportation. Payable gold discovered at The Nook, near Fingal, and at Nine Mile Springs.
- 1853 Vic.—University established. Tas.—Abolition of transportation.
- 1854 N.S.W.—Russian war-scare and volunteer movement. Vic.—Opening of first Victorian railway—Flinders Street to Port Melbourne. Riots on Ballarat goldfields. Storming of the Eureka Stockade, 3rd Dec.
- 1855 N.S.W.—Opening of railway—Sydney to Parramatta. Introduction of responsible Government. Mint opened. Vic.—Proclamation of Constitution. Qld.—Gregory's expedition in search of Leichhardt. Tas.—Responsible government introduced.
- 1856 N.S.W.—First elective Parliament. Pitcairn Islanders placed on Norfolk Island, which was placed under jurisdiction of Governor of New South Wales. Vic.—First Parliament under responsible government. S.A.—Responsible government introduced. Tas.—First Parliament under responsible government. W.A.—A. C. Gregory's expedition in search of Leichhardt.
- 1857 N.S.W.—Heavy floods. Wreck of the *Dunbar* (119 lives lost), and *Catherine Adamson* (21 lives lost), at Sydney Heads. Select Committee on Federation. Vic.—Manhood suffrage established. S.A.—First Parliament under responsible government. Exploration by Babbage and Warburton. Passage of Terrens' Real Property Act.
- 1858 N.S.W.—Establishment of manhood suffrage and vote by ballot. Telegraphic communication between Sydney, Melbourne, and Adelaide. S.A.—Stuart's explorations. Qld.—The Canoona gold rush.
- 1859 Qld.—Proclamation of Queensland as separate colony. Tas.—First submarine cable, *via* Circular Head and King Island, to Cape Otway.
- 1860 N.S.W.—Disastrous floods on the Shoalhaven and at Araluen. Vic.—Burke and Wills left Melbourne on their journey across Continent. Qld.—First Parliament under responsible government. S.A.—Copper discoveries at Wallaroo and Moonta.
- 1861 N.S.W.—Anti-Chinese riots at Lambing Flat and Burrangong goldfields. Opening of first tramway in Sydney. Robertson's Land Acts. Messrs. Parkes and Dalley proceeded to London as emigration lecturers. Regulation of Chinese immigration. Vic.—Conference of Statisticians, Melbourne. Burke and Wills perished at Cooper's Creek, near Innamincka, S.A. W.A.—Exploration of F. Gregory in the North-west.
- 1862 N.S.W.—Raid by bushrangers on the Lachlan gold escort (£14,000 taken). Abolition of State aid to religion. Real Property Act. Vic.—C. Gavan Duffy's Land Act. Qld.—McKinlay's explorations. Heavy floods on Fitzroy River. S.A.—Stuart crossed the Continent from south to north. W.A.—Severe floods—damage to property, £30,000. First export of pearl-shell.
- 1863 N.S.W.—Bathurst and Canowindra "held up" by bushranger Gilbert. Vic.—Intercolonial conference at Melbourne. S.A.—Northern Territory taken over. W.A.—Initiation of settlement in the North-west district. Establishment of Post Office (now Government) Savings Bank.

- Year.
- 1864 N.S.W.—Frequent outrages by bushrangers. Qld.—First railway begun and opened. First sugar made from Queensland cane. W.A.—Messrs. Panton, Harding, and Goldwyer murdered by natives. Tas.—First successful shipment of English salmon ova.
- 1865 N.S.W.—Destruction by fire of St. Mary's Cathedral, Sydney.
- 1866 N.S.W.—Passage of Public Schools Act of (Sir) Henry Parkes. Qld.—Financial crisis. S.A.—Introduction of camels for exploration, etc.
- 1867 Vic.—Imposition of protective tariff. Qld.—Discovery of gold at Gympie.
- 1868 N.S.W.—Attempted assassination of the Duke of Edinburgh at Clontarf, near Sydney. Qld.—Passage of Act to regulate island labour traffic. W.A.—Arrival of the *Hougoumont*, last convict ship. Tas.—First sod of first railway (Launceston and Western) turned by Duke of Edinburgh.
- 1869 N.S.W.—Establishment of Eskbank Iron Company. Vic.—Reduction of property qualification for members and electors of Legislative Council. W.A.—First telegraph line opened from Perth to Fremantle. Tas.—Second cable opened.
- 1870 N.S.W.—Intercolonial Exhibition opened at Sydney. Imperial troops withdrawn. Vic.—Intercolonial Congress at Melbourne. S.A.—Commencement of trans-continental telegraph.
- 1871 N.S.W.—Permanent military force raised. Vic.—Increase of protective duties. W.A.—Passage of Elementary Education Act. Forrest's explorations, Tas.—Discovery of tin at Mount Bischoff. Launceston-Western railway opened for traffic.
- 1872 N.S.W.—International Exhibition at Sydney. Death of W. C. Wentworth. Vic.—Mint opened. Qld.—Discovery of tin at Stanthorpe, copper at Mt. Perry, coal at Wide Bay, gold at the Palmer. S.A.—Cable from Java to Port Darwin. Completion of transcontinental telegraph line. W.A.—Cyclonic storms—destruction of town of Roebourne. Tas.—Completion of direct telegraphic communication with England.
- 1873 N.S.W.—Intercolonial Conference at Sydney. First volunteer encampment. Inauguration of mail service with San Francisco. W.A.—Warburton crossed from transcontinental telegraph line to head of De Grey River.
- 1874 N.S.W.—Triennial Parliaments Act passed. Intercolonial Conference. Qld.—Dalrymple's discoveries on north-eastern seaboard. S.A.—Adelaide University founded. W.A.—Explorations by E. Giles. John and Alexander Forrest arrived at Overland Telegraph from Murchison.
- 1875 Qld.—Transfer of Port Albany Settlement to Thursday Island. S.A.—Wreck of the *Gothenburg*—Judge Wearing and other well-known Adelaide citizens drowned. Education Act passed. Explorations by Giles, Gosse, and Warburton. Tas.—Conference of Statisticians, Hobart.
- 1876 N.S.W.—Completion of cable—Sydney (La Perouse) to Wellington (Wakapuaka). Vic.—Members of Legislative Assembly increased to 86. W.A.—Violent gale at Exmouth Gulf, number of pearling vessels wrecked, 69 lives lost. Giles crosses colony from east to west. Tas.—Death of Truganini, last representative of Tasmanian aborigines.
- 1877 Vic.—Deadlock on question of payment to members. W.A.—Opening of telegraphic communications with South Australia. Tas.—Discovery of rich gold-bearing quartz reef at Beaconsfield.
- 1878 N.S.W.—Seamen's strike. Vic.—Visit to England of Victorian delegation re alteration of Victorian Constitution. "Black Wednesday"—wholesale dismissal of civil servants. Qld.—Restriction of Chinese immigration.
- 1879 N.S.W.—First artesian bore at Killara. International Exhibition at Garden Palace, Sydney. First steam tramway. First issue of silver coin from Mint. W.A.—Celebration of 50th anniversary of foundation of colony. A. Forrest's explorations in the Kimberley district, and discovery of the Fitzroy pastoral country.
- 1880 N.S.W.—Public Instruction Act passed. Sydney streets partially wood-paved. Vic.—Opening of first Victorian International Exhibition at Melbourne. Federal Conference, at Melbourne and Sydney.
- 1881 N.S.W.—Further restrictions on Chinese immigration. Vic.—Reduction of property qualification for members and electors of Legislative Council, number of members increased to 42. W.A.—Cyclone near Roebourne wrecked number of pearling vessels. On the Ashburton, 1,000 sheep destroyed by cyclone. First simultaneous Australian Census, population 2,250,194. Visit to Australia of T.R.H. Prince Albert Victor and Prince George of Wales.

Year.

- 1882 N.S.W.—Garden Palace destroyed by fire. W.A.—Nugget of gold found between Roebourne and Cossack.
- 1883 N.S.W.—Discovery of silver at Broken Hill. Completion of railway between New South Wales and Victoria. Qld.—Annexation of New Guinea—repudiated by Imperial authorities.
Federal Conference held at Sydney. Federal Council created.
- 1884 N.S.W.—Land legislation restricting sales by auction. Vic.—Appointment of First Public Service Board. W.A.—Stockdale's explorations.
Federation Bill passed in Victoria and rejected in New South Wales. British protectorate declared over New Guinea.
- 1885 N.S.W.—Military contingent sent to the Sudan. Opening of the Broken Hill Proprietary Silver Mines. Qld.—Agitation for division of the colony. W.A.—Gold found by prospectors on the Margaret and Ord Rivers in the Kimberley district. Tas.—Silver-lead discovered at Mount Zeehan.
- 1886 N.S.W.—Industrial depression. Wreck of the *Ly-ee-Moon*, *Coringamite*, and *Helen Nicol*. S.A.—Celebration of jubilee of foundation of province. W.A.—Proclamation of Kimberley goldfields. Tas.—Discovery of gold and copper at Mount Lyell.
First session of Federal Council met at Hobart on the 26th January.
- 1887 N.S.W.—Disaster at Bulli coal mine (81 lives lost). Peat's Ferry (Hawkesbury River) railway accident. S.A.—International Exhibition at Adelaide. W.A.—Cyclone destroyed nearly the whole pearling fleet off the Ninety-Mile Beach—200 lives lost. Gold discovered at Southern Cross.
Australasian Conference in London. Australasian Naval Defence Force Act passed.
- 1888 N.S.W.—Destructive bush fires. Centennial celebrations. Restrictive legislation against Chinese, imposing poll-tax of £100. Vic.—Second Victorian International Exhibition held at Melbourne. Members of Legislative Council increased to 48, and of Assembly to 95. Qld.—Railway communication opened between Sydney and Brisbane. W.A.—Favenc's explorations.
Centenary of first settlement in Australia. Conference of Australian Ministers at Sydney to consider question of Chinese immigration. First meeting of the Australasian Association for the Advancement of Science held in Sydney. Imperial Defence Act passed.
- 1889 N.S.W.—Destructive floods, Hunter River. Qld.—Direct railway communication established between Brisbane and Adelaide. W.A.—Framing of new Constitution. Tas.—University founded.
- 1890 N.S.W.—Strike at Broken Hill. Maritime and shearers' strikes. Payment of members of Parliament. Destructive bush fires. Qld.—Wreck of the *Quetta*—146 lives lost. Floods and hurricanes. Industrial depression. W.A.—Responsible government granted.
Meeting at Melbourne of Australasian Federation Conference. Pre-censal Conference of Statisticians at Hobart.
- 1891 N.S.W.—Election to Legislative Assembly of 35 Labour members. Arrival of Australian Auxiliary Squadron. Collapse of several building societies. Cessation of assisted immigration. W.A.—Discovery of gold on the Murchison.
Federal Convention in Sydney, draft bill framed and adopted. Second simultaneous Australian census. Population, 3,174,392.
- 1892 N.S.W.—Broken Hill miners' strike. Run on Government Savings Bank. Women's College, Sydney University, opened. Vic.—Suspension of Railway Commissioners. W.A.—Discovery of gold by Messrs. Bayley and Ford at Coolgardie.
- 1893 N.S.W.—Departure by the *Royal Tar* of colonists for "New Australia." Electoral Act—"One man one vote." Financial crisis, chiefly affecting the eastern States. Qld.—Brisbane floods.
- 1894 N.S.W.—Shearers' strike. S.A.—Adult Suffrage Bill assented to. Industrial depression.
- 1895 N.S.W.—Crown Lands Act of 1895. Free-trade tariff. Land and income taxes introduced.
Conference of Premiers at Hobart *re* Federation.
- 1896 N.S.W.—People's Federal Convention at Bathurst. S.A.—Departure of Calvert expedition.
- 1897 S.A.—Floods and storms at Adelaide. Death of Sir Thomas Elder. Earthquake and hurricane in Northern Territory. Town of Palmerston destroyed.
- 1897-8 Sessions of Federal Convention at Adelaide, Sydney, and Melbourne.

Year.

- 1898 N.S.W.—First surplus of wheat for export.
Draft Federal Constitution Bill submitted to electors in Victoria, New South Wales, South Australia, and Tasmania. Requisite statutory number of votes not obtained in New South Wales.
- 1899 First contingent of Australian troops sent to South Africa. Conference of Premiers in Melbourne to consider amendments to Federal Constitution Bill, Referendum—Bill accepted by New South Wales, Victoria, Queensland, South Australia, and Tasmania.
- 1900 N.S.W.—Old-age pensions instituted. W.A.—Agitation for separation by gold-fields.
Contingents of naval troops sent to China.
Commonwealth Constitution Act received Royal Assent, 9th July. Mr. (afterwards Sir) Edmund Barton formed first Federal Ministry.
- 1901 Vic.—Old-age Pensions instituted.
Proclamation of the Commonwealth at Sydney. First Federal Parliament opened at Melbourne by the Duke of Cornwall and York. Simultaneous Australasian Census—population of the Commonwealth, 3,773,801. Interstate freetrade established.
- 1902 N.S.W.—Disastrous explosion at Mount Kembla Colliery—95 lives lost. Women's franchise granted. Jubilee of Sydney University. S.A.—Reduction of number of members of both Houses of Parliament. W.A.—Opening of pumping station at Northam in connection with Goldfields water supply.
First Federal Tariff.
- 1903 Vic.—Railway Strike (Enginemen). W.A.—Coolgardie and Kalgoorlie water supply scheme completed.
Inauguration of the Federal High Court. Conference of Statisticians in Melbourne.
- 1904 N.S.W.—Reduction of members of Legislative Assembly from 125 to 90.
- 1905 N.S.W.—Re-introduction of assisted immigration.
- 1906 Wireless telegraphy installed between Queenscliff, Vic., and Devonport, Tas. Conference of Statisticians of Australian States and New Zealand. Papua taken over by Commonwealth.
- 1907 N.S.W.—Telephone, Sydney to Melbourne, opened.
Imperial Conference in London. Introduction of new tariff in Federal Parliament. Preference to United Kingdom. Allowance to Federal members of Parliament increased from £400 to £600.
- 1908 Vic.—Railway accident at Braybrook Junction (Sunshine)—44 killed, 412 injured; compensation paid, £126,000.
Yass-Canberra chosen as site of Federal Capital. Interstate Premiers' Conference at Melbourne.
- 1909 N.S.W.—Miners' strikes at Broken Hill and Newcastle. Qld.—University established. S.A.—*Clan Ranald* foundered in St. Vincent's Gulf—40 drowned. W.A.—Cyclone at Broome.
Imperial Defence Conference in London—Commonwealth ordered two destroyers and one first-class cruiser for fleet unit. Visit of Lord Kitchener to report and advise on Commonwealth military defence. Loss of the *Waratah* with 300 passengers and crew.
- 1910 Vic.—Railway accident at Richmond—9 killed, over 400 injured; compensation paid, £129,000. W.A.—Cyclone at Broome—several pearling vessels wrecked, three whites and many coloured fishermen drowned. Wreck of the *Pericles* off Cape Leeuwin.
Referendum on financial relations between the Commonwealth and the States. Proclamation taking over Yass-Canberra (in New South Wales) as site for Federal Capital. Penny postage. Visit of Scottish Agricultural Commission. Arrival of the *Yarra* and *Parramatta*, first vessels of Australian navy. Australian Notes Act passed and first Commonwealth notes issued. Admiral Sir R. Henderson visited Australia to advise on naval defence.
- 1911 First Federal Census—population of the Commonwealth, 4,455,005. Transfer of Northern Territory to Commonwealth. Federal referenda relating to Monopolies and Industrial Legislation—proposals rejected. Introduction of compulsory military training. Launch of Commonwealth destroyer *Warrego* at Sydney. Establishment of penny postage to all parts of British Empire. Western Australian University founded.

Year.

- 1912 Commonwealth Bank opened. First payments of Maternity Bonus. First sod turned at Port Augusta of Trans-Australian Railway (Port Augusta to Kalgoorlie). Administrators to Northern and Federal Territories appointed. Gift of £1,000,000 to charities by Mrs. Walter Hall, Sydney, N.S.W.
- 1913 Arrival of battle cruiser *Australia*, and cruisers *Melbourne* and *Sydney*. Foundation stone of Commonwealth Building in London laid by the King. Federal Capital named Canberra and foundation stone laid. Appointment of Inter-state Commission. Visit of Empire Trade Commission. Visit of Members of Empire Parliamentary Association.
- 1914 Visit of General Sir Ian Hamilton to report on military defence scheme. Double dissolution of Federal Parliament. Visit of British Association for the Advancement of Science.
- European War. Australian Navy transferred to Imperial Navy. Captured vessels added to Australian fleet. Submarine AE1 lost at sea whilst on service in the vicinity of New Britain. German Pacific possessions seized by Australian expeditionary force (military and naval). Australian troops offered to, and accepted by Imperial Government. German Cruiser *Emden* destroyed at North Cocos Island by H.M.A.S. *Sydney*.
- 1915 Opening of Broken Hill Proprietary's Ironworks at Newcastle, N.S.W. Referendum for purpose of giving increased powers to the Commonwealth abandoned. Navy Department created. Formation of Australian Wheat Board. First War Loan, £13,389,000.
- Australian troops landed at Dardanelles on 25th April. Loss of Submarine AE2 in operations at the Dardanelles. Census taken of Wealth and Income, and of Males in Australia between ages of 17 and 60. Australian troops withdrawn from Gallipoli on 19th December.
- 1916 Record wheat harvest (180,000,000 bushels). Special recruiting campaign instituted. Australian troops transferred to France. Visit of Rt. Hon. W. M. Hughes, P.C., K.C., Prime Minister, to Canada, Great Britain, and South Africa, and to troops in England and France. Acquisition of steamships by the Commonwealth. First Military Service Referendum—proposal rejected. Second War Loan, £21,656,000.
- 1917 National Ministry formed. Third War Loan, £23,588,000. General strike. Kalgoorlie-Port Augusta railway completed. Second Military Service Referendum. Fourth War Loan, £21,584,000. Fifth War Loan, £21,214,000.
- 1918 Population of Australia reaches 5,000,000. Australian troops in France formed into an Army Corps, commanded by Lieut.-Gen. Sir John Monash. Cessation of hostilities and surrender of Germany. Sixth War Loan, £42,952,000. Seventh War Loan, £44,084,000. Repatriation Department created. Australia House (Strand, London) opened by the King. Australian representative for United States appointed. Death of Sir G. H. Reid. Death of Lord Forrest of Bunbury.
- 1918-1919 Visit to America and Europe of Rt. Hon. W. M. Hughes, P.C., K.C., Prime Minister, representative at Peace Conference.
- 1919 Epidemic of influenza. Seamen's strike. Strike of Broken Hill miners. Aerial flight England to Australia by Capt. Sir Ross Smith and Lieut. Sir Keith Smith. Death of Hon. Alfred Deakin. Conference in London re Double Income Tax. Visit to Australia of General Sir W. Birdwood. Visit of Admiral Lord Jellicoe. First Peace Loan, £25,025,000.
- 1920 Visit to Australia of H.R.H. the Prince of Wales. Aerial flight England to Australia by Lieuts. Parer and McIntosh. Death of Rt. Hon. Sir Edmund Barton. Death of Rt. Hon. Sir Samuel Griffith. Imperial Statistical Conference in London. Increase of allowance to Federal Members from £600 to £1000. Second Peace Loan, £26,613,000. Introduction of new Tariff in Federal Parliament.
- 1921 Visit to Imperial Conference of Rt. Hon. W. M. Hughes, P.C., K.C., Prime Minister. Second Commonwealth Census—population of Commonwealth, 5,436,794. Germany's Indemnity fixed (Australia's share approximately £63,000,000). Visit of Senator Pearce (Minister for Defence) to Disarmament Conference at Washington. Mining Disaster at Mt Mulligan, Queensland—76 lives lost. Mandate given to Australia over certain captured German Territory in the Pacific. Peace Loan, £10,000,000. Total War and Peace Loans raised to 15th June, 1921, £240,000,000.

OFFICIAL YEAR BOOK

OF THE

COMMONWEALTH OF AUSTRALIA, 1921,

AND EARLIER YEARS.

SECTION I.

STATISTICAL ORGANIZATION AND SOURCES OF INFORMATION.

§ 1. Introduction.

1. **Development of Australian Statistics.**—In the first issue of the Commonwealth Official Year Book (No. 1, 1901–1907), an account was given of the origin and development of Australian Statistics; *vide* pp. 1 to 16 therein. Owing to considerations of space, however, this matter was considerably curtailed in succeeding Year Books, and appears in No. 4 on pp. 1 to 4. In the following issues, a still further curtailment has been made in order to make room for new matter.

Briefly, it may be stated that to the “Blue Books” compiled in Australia for the Imperial authorities, there succeeded, under Responsible Government, the statistics which each of the departments prepared for itself. State statistical departments were organised later, principally as collecting agencies of official and general information.

Owing to absence of co-ordination in collection and compilation due to the organization independently of the various States bureaux, there were difficulties in so combining State statistics as to get a satisfactory statistic for Australia as a whole, and various conferences of State Statisticians did not completely rectify the divergencies that had arisen.

Creation of the Commonwealth Bureau of Census and Statistics. Constitutionally, matters relating to “Census and Statistics” belong to the Commonwealth, and in 1906, under the authority of the Census and Statistics Act of 1905, providing for the taking of the Census and the collecting of general statistics, the Commonwealth Bureau of Census and Statistics was created. A conference of statistical representatives of Australian States and New Zealand, under the presidency of the Commonwealth Statistician, met in November and December, 1906. For a more or less complete presentation of the affairs of the Commonwealth and of its constituent parts, various desiderata were recognised, and a series of resolutions adopted by the conference. Identity of categories, simultaneity and identity in methods of collection, and uniformity in compilation, were the main features desired. A résumé of the resolutions of this conference is given in Year Book No. 1, pp. 12–16. Mr. G. H. Knibbs, C.M.G., F.S.S. (now Honorary Fellow), etc., was appointed the first Commonwealth Statistician on the 18th June, 1906, and continued in that capacity until the 18th March, 1921, when he was appointed Director of the Commonwealth Institute of Science and Industry. The vacant position was filled in August, 1922, by the appointment, as from 1st August, 1922, of Mr. C. H. Wickens, F.I.A., F.S.S., who had previously filled the position of Supervisor of Census in the Bureau.

2. Sources of Information.—Statistical information is furnished (i) by the State Statistical Bureaux, either as a result of direct demand, or through the police and special collectors; (ii) by Commonwealth and State Departments (see lists of publications in § 2 *infra*); (iii) in respect of returns of Trade, Customs and Excise, by the Trade and Customs Department; (iv) by scientific and technical experts, specially requisitioned to write on particular subjects; (v) by State Statisticians, as officers duly constituted under the Commonwealth Census and Statistics Act; and (vi) by information supplied compulsorily, on the Commonwealth Statistician's demand.

3. Maintenance of Secrecy.—Under no circumstances can information supplied to a statistical office be used against the individual supplying it. All statistical enquiries are strictly impersonal, and the affairs of individuals or individual businesses are never disclosed. No other Government Department can make use of the Statistical Departments in order to acquire detailed information otherwise unavailable.

4. Accuracy Essential.—The importance of accurate statistical information is emphasized. The making of untrue statements is heavily penalised.

§ 2. Statistical Publications of Australia.

1. Introductory.—The official statistical publications of Australia may be divided bibliographically into two main divisions, viz. :—(1) Commonwealth publications dealing both individually and collectively with the several States of the Commonwealth, and (2) State publications dealing with individual States only. Besides these there are many other reports, etc., issued regularly, which though not wholly statistical, necessarily contain a considerable amount of statistical information. The more important of these published to September, 1922, are indicated below.

2. Commonwealth Publications.—Commonwealth publications may be grouped under two heads, viz. :—(i) Publications issued by the Commonwealth Statistician, and (ii) Parliamentary and Departmental Reports and Papers.

(i) *Publications issued by the Commonwealth Statistician.* The following is a list of the principal statistical publications issued from the Commonwealth Bureau of Census and Statistics since its inauguration up to September, 1922. The Demography, Finance, Production, and Transport and Communication Bulletins cover statistics from 1901. The Year Book contains figures from earlier years. A full list from 1906 to 1920 is given in Official Year Book No. 13, pp. 2 *et seq.*

Australian Life Tables, 1901–1910. Australian Joint Life Tables, 1901–1910.

Census (1911) Bulletins.

Census (1911) Results.—Vols. I., II., and III., with Appendix “Mathematical Theory of Population.”

Census (1921) Results.—*Various Bulletins.*

Finance—Bulletins, 1907 to 1915–16 annually; 1916–17; 1917–18 and 1918–19, (one vol.); 1919–20 and 1920–21 (one vol.); future issues biennially.

Labour and Industrial Statistics—Memoranda and Reports, various, to 1913.
Annual Reports—Prices, Purchasing Power of Money, Wages, Trade Unions, Unemployment, and General Industrial Conditions, 1913 to 1921.

Local Government in Australia—July, 1919.

Official Year Book of the Commonwealth of Australia—Annually, 1907 to present issue (1922).

Pocket Compendium of Australian Statistics (formerly *Statistical Digest*), 1913, 1914, 1916, 1918, 1919, 1920, 1921, and 1922.

Population and Vital Statistics Bulletins—Reports, various. Commonwealth Demography, 1911 to 1921.

Production—Bulletins, annually, 1906 to 1920–21.

Professional Papers—Various. A full list will be found in Official Year Book No. 13, p. 3.

Quarterly Summary of Australian Statistics—first issue, No. 70, December, 1917, replacing *Monthly Summary of Australian Statistics* (Bulletins 1 to 69), and incorporating data from earlier publications relating to Labour, Shipping, Trade, Vital Statistics, Oversea Migration, etc.

Social Insurance—Report to the Hon. the Minister of Trade and Customs, 1910.

Social Statistics—Bulletins, 1907 to 1920 annually; future issues biennially.

Superannuation for the Commonwealth Public Service—Report to the Hon. the Minister of Home Affairs, 1910.

Trade and Customs—Trade, and Customs and Excise Revenue, annually, 1906 to 1920–21.

Transport and Communication—Bulletins, 1906 to 1916 annually; 1917 and 1918 (one vol.); 1920; future issues biennially.

Wealth—The Private Wealth of Australia and its Growth, as ascertained by various methods, together with a Report of the War Census in 1915.

(ii) *Commonwealth Parliamentary and Departmental Reports and Papers*. The principal official reports and papers containing statistical matter issued from the inauguration of the Commonwealth, to 1920, are given in Official Year Book No. 13, pp. 4 *et seq.* They relate chiefly to Administration, Arbitration, Audit, Banks, Bounties, Business Undertakings, Commerce, Commissions (Customs, Defence, Elections, Economics, Industries, Trade), Debts, Defence (Army and Navy), Elections and Franchise, Federal Capital, Fisheries, Forestry, High Commissioner, History, Immigration, Industries and Manufactures Inter-State Commission, Labour and Unionism, Laws, Lighthouses, Medicine, Meteorology, Murray Waters, Naturalization, New Guinea, Norfolk Island, Northern Territory, Papua, Patents, Pensions, Posts, Prices, Public Service, Public Works, Railways, Repatriation, Science and Industry, Shipping, Social Insurance, Sugar, Tariff, Taxation, Telegraphs, Telephones, Trade and Customs, Trade Marks, Treasury, War Service Homes, Wool, etc.

3. *State Publications*.—(i) The chief publications of each State are :—Publications by the various State Statisticians, the principal of which are set out below. Annual and other Reports of Departments, Officials, Boards, etc., as given in Official Year Book No. 13, pp. 7 *et seq.* Reports and Statements of Local Governing Bodies, also shown in Official Year Book No. 13, pp. 7 *et seq.*

(ii) *Principal Publications by Government Statisticians of the Various States* :—

- (a) New South Wales—Statistical Register (annual); Official Year Book of New South Wales (annual); Statesman's Year Book (annual); Vital Statistics (monthly and annual); Statistical Bulletin (monthly to December, 1919, thereafter quarterly).
- (b) Victoria—Statistical Register (annual to 1916, then discontinued); Victorian Year Book (annual); Vital Statistics (annual and quarterly); Statistical Abstracts (quarterly to 1917).
- (c) Queensland—Statistical Register (annual); Official Year Book, 1901; A.B.C. of Queensland Statistics (annual); Vital Statistics (annual and monthly).
- (d) South Australia—Statistical Register (annual); Official Year Book, 1912 and 1913; Blue Book (annual); Statesman's Pocket Year Book (annual); Returns of Births and Deaths (monthly).
- (e) Western Australia—Statistical Register (annual); Year Book, 1900–03, 1902–4, 1905 (part); Blue Book (annual); Statistical Abstracts (quarterly, previously issued monthly to July, 1917); Population and Vital Statistics (annual and quarterly); Statistical View of Progress (annual).
- (f) Tasmania—Statistical Register (annual); Statesman's Pocket Year Book annual, from 1915; Statistical Summaries (annual); Vital Statistics and Migration (annual and monthly).

§ 3. Bibliography of Recent Works on Australia.

1. General.—In Official Year Book No. 13, a list of the principal general works dealing with Australia and Australian affairs, published from 1901 to 1920, will be found. Of the publications of the first sixteen years of the Commonwealth the more important are now repeated, with a fuller list of works published within the last six years.

- ALLIN, C. D. *A History of the Tariff Relations of the Australian Colonies.* Minneapolis, 1918.
- ATRINSON, MEREDITH (Ed.). *Australia: Economic and Political Studies*, by Various Writers. Melbourne, 1920.
- AUSTRALIAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. *Annual Reports of Proceedings.*
- BEAN, C. E. W. (Ed.). *Official History of Australia in the War of 1914–1918* (in 12 vols.). Vol. I., Sydney, 1921.
- BERNAYS, C. A. *Queensland Politics during Sixty Years, 1859–1919.* Brisbane, 1919.
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2. *Works on Special Subjects.*—In addition to the works set out above, dealing generally with the historical, industrial and personal aspects of the Australian people, there have been a number of recent works upon special subjects, the more important of which will be found in Official Year Book No. 13, pp. 11–12. The following list of more recent works of note may be of interest:—

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SECTION II.

DISCOVERY, COLONISATION, AND FEDERATION OF AUSTRALIA.

§ 1. Early Knowledge of Australia.

A brief, though fairly comprehensive, account of the discovery and early knowledge of Australia was given in Year Book No. 1 (pp. 44 to 51). This account appeared in a condensed form in Year Books Nos. 2, 3, and 4. Bibliographical references to the subject were also given in Year Book No. 1 (p. 49). Exigencies of space prevent the inclusion of any further reference to this subject in the present issue.

§ 2. The Taking Possession of Australia.

Reference was made to the more important facts relating to the taking possession and annexation of Australia in each of the first four issues of this book: see preferably Year Book No. 4 (pp. 15 and 16). In so far as the annexation of the eastern parts is concerned, a full historical account of the period may be found in the "Historical Records of New South Wales," Vol. I., parts 1 and 2. For an account of the annexation of Western Australia, reference may be made to the West Australian Year Book, 1905, Part I.

§ 3. The Creation of the Several Colonies.

1. **Introduction.**—A historical summary of the facts relating to the creation of the several colonies and the changes in the boundaries of certain of the colonies has appeared in the previous issues of this book: see Year Book No. 4 (pp. 16 to 23). The main facts in this connection may be traced by reference to the maps in preceding issues (see Year Book No. 4, pp. 17 and 18). The dates of annexation, etc., are given in Official Year Book No. 13, p. 12.

The immense area generally known as Australasia had, by 1863, been divided into seven distinct colonies, the areas of which are shewn below. The areas of the Northern Territory and the Federal Capital Territory, which are now under the exclusive jurisdiction of the Commonwealth, are given separately.

On the 1st January, 1901, the colonies mentioned above, with the exception of New Zealand, were federated under the name of the "Commonwealth of Australia," the designation of "Colonies" being at the same time changed into that of "States." The total area of the Commonwealth is, therefore, 2,974,581 square miles. The dates of creation and the areas of the separate colonies and territories, as determined on the final adjustment of their boundaries, are shewn in the following table:—

DATES OF CREATION AND AREAS OF THE SEVERAL COLONIES AND TERRITORIES.

Colony.	Year of Formation into Separate Colony.	Present Area in Square Miles.	Colony.	Year of Formation into Separate Colony.	Present Area in Square Miles.
New South Wales	1786	309,432(a)	New Zealand ..	1841	104,751
Tasmania ..	1825	26,215	Victoria ..	1851	87,884
Western Australia	1829	975,920	Queensland ..	1859	670,500
South Australia	1834	380,070	Northern Territory	1863	523,620
(proper)			Federal Capital Territory ..	1911	940(b)
Commonwealth			2,974,581 square miles.		
Australasia			3,079,332 square miles.		

(a) Exclusive of Federal Capital Territory (Canberra and Jervis Bay).

(b) Prior to 1911 included with New South Wales.

2. **British New Guinea or Papua.**—Under the administration of the Commonwealth, but not included in it, is British New Guinea or Papua, finally annexed by the British Government in 1884. This Territory was for a number of years administered by the Queensland Government, but was transferred to the Commonwealth by proclamation on the 1st September, 1906, under the authority of the Papua Act (Commonwealth) of 16th November, 1905. The area of Papua is about 90,540 square miles. More extended reference to this dependency of the Commonwealth will be found in Section XXIX., as also a reference to the late German territory on the island.

3. **Transfer of the Northern Territory to the Commonwealth.**—On the 7th December, 1907, the Commonwealth and the State of South Australia entered into an agreement for the surrender to and acceptance by the Commonwealth of the Northern Territory, subject to approval by the Parliaments of the Commonwealth and the State. This approval was given by the South Australian Parliament under the Northern Territory Surrender Act 1907 (assented to on the 14th May, 1908), and by the Commonwealth Parliament under the Northern Territory Acceptance Act 1910 (assented to on the 16th November, 1910). The Territory accordingly was transferred by proclamation to the Commonwealth on the 1st January, 1911. Further information may be found in Section XXIX. of this book on "The Commonwealth Territories."

4. **Norfolk Island.**—Although administered for many years by the Government of New South Wales, this island was, until 1st July, 1914, a separate Crown colony. On that date it was taken over by the Federal Parliament as a territory of the Commonwealth. Further reference to the island will be found in Section XXIX.

§ 4. Transfer of the Federal Capital Territory to the Commonwealth.

On the 18th October, 1909, the Commonwealth and the State of New South Wales entered into an agreement for the surrender to and acceptance by the Commonwealth of an area of 912 square miles as the seat of Government of the Commonwealth. In December, 1909, Acts were passed by the Commonwealth and New South Wales Parliaments, approving the agreement, and on the 5th December, 1910, a proclamation was issued vesting the Territory in the Commonwealth on and from the 1st January, 1911. By the Jervis Bay Territory Acceptance Act 1915, an area of 28 square miles at Jervis Bay, surrendered by New South Wales according to an agreement made in 1913, was accepted by the Commonwealth. Further reference to this Territory will be found in Section XXIX. of this book.

§ 5. The Exploration of Australia.

A fairly complete, though brief, account of the Exploration of Australia was given in Year Book No. 2 (pp. 20 to 39). A brief summary of the more important facts relating to the subject was given in Year Books Nos. 3 and 4. Maps showing the progress of Australian exploration may also be found in previous issues (see No. 8, p. 35).

§ 6. The Constitutions of the States.

A brief and condensed statement of the constitutional history of the several States, shewing how their present Constitutions have been built up, may be found in Section II. of the second, third, and fourth issues of the Year Book. (See No. 4, pp. 27 to 32.)

A conspectus of the Acts of Constitution of the Commonwealth and the several States is given in Section No. XXV. of Official Year Book No. 13. The full text of the Commonwealth Constitution Act and amendments thereto appears in §8 hereinafter.

§ 7. The Federal Movement in Australia.

A summary was given in Year Book No. 1 (pp. 17 to 21) of the "Federal Movement in Australia" from its inception to its consummation; a synopsis thereof was given in Year Books Nos. 2, 3, and 4. (See No. 4, pp. 32 to 37.)

§ 8. Creation of the Commonwealth.

1. The Act.—The Commonwealth of Australia Constitution Act, 63 and 64 Vic., Chapter 12, namely, an Act to constitute the Commonwealth of Australia, was shewn *in extenso* in Year Book No. 1. In the Year Books Nos. 2, 3, and 4, a summary of the Act was given. As two amending Acts, namely, the Constitution Alteration (Senate Elections) Act 1906, and the Constitution Alteration (State Debts) Act 1909 have been passed, it was thought desirable to insert the Act, as amended, in full in Year Book No. 5 and subsequent issues.

THE COMMONWEALTH OF AUSTRALIA CONSTITUTION ACT,
63 & 64 VICT., CHAPTER 12.

An Act to constitute the Commonwealth of Australia. [9th July, 1900.]

WHEREAS the people of New South Wales, Victoria, South Australia, Queensland, and Tasmania, humbly relying on the blessing of Almighty God, have agreed to unite in one indissoluble Federal Commonwealth under the Crown of the United Kingdom of Great Britain and Ireland, and under the Constitution hereby established:

And whereas it is expedient to provide for the admission into the Commonwealth of other Australasian Colonies and possessions of the Queen:

Be it therefore enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

1. This Act may be cited as the Commonwealth of Australia Constitution Act.
2. The provisions of this Act referring to the Queen shall extend to Her Majesty's heirs and successors in the sovereignty of the United Kingdom.
3. It shall be lawful for the Queen, with the advice of the Privy Council, to declare by proclamation that, on and after a day therein appointed, not being later than one year after the passing of this Act, the people of New South Wales, Victoria, South Australia, Queensland, and Tasmania, and also, if Her Majesty is satisfied that the people of Western Australia have agreed thereto, of Western Australia, shall be united in a Federal Commonwealth under the name of the Commonwealth of Australia. But the Queen may, at any time after the proclamation, appoint a Governor-General for the Commonwealth.
4. The Commonwealth shall be established, and the Constitution of the Commonwealth shall take effect, on and after the day so appointed. But the Parliaments of the several colonies may at any time after the passing of this Act make any such laws, to come into operation on the day so appointed, as they might have made if the Constitution had taken effect at the passing of this Act.
5. This Act, and all laws made by the Parliament of the Commonwealth under the Constitution, shall be binding on the courts, judges, and people of every State and of every part of the Commonwealth, notwithstanding anything in the laws of any State; and the laws of the Commonwealth shall be in force on all British ships, the Queen's ships of war excepted, whose first port of clearance and whose port of destination are in the Commonwealth.
6. "The Commonwealth" shall mean the Commonwealth of Australia as established under this Act.

"The States" shall mean such of the colonies of New South Wales, New Zealand, Queensland, Tasmania, Victoria, Western Australia, and South Australia, including the northern territory of South Australia, as for the time being are parts of the Commonwealth, and such colonies or territories as may be admitted into or established by the Commonwealth as States: and each of such parts of the Commonwealth shall be called "a State."

"Original States" shall mean such States as are parts of the Commonwealth at its establishment.

7. The Federal Council of Australasia Act, 1885, is hereby repealed, but so as not to affect any laws passed by the Federal Council of Australasia and in force at the establishment of the Commonwealth.

Any such law may be repealed as to any State by the Parliament of the Commonwealth, or as to any colony not being a State by the Parliament thereof.

8. After the passing of this Act the Colonial Boundaries Act, 1895, shall not apply to any colony which becomes a State of the Commonwealth; but the Commonwealth shall be taken to be a self-governing colony for the purposes of that Act.

9. The Constitution of the Commonwealth shall be as follows :—

THE CONSTITUTION.

This Constitution is divided as follows :—

- Chapter I.—The Parliament :—
 - Part I.—General :
 - Part II.—The Senate :
 - Part III.—The House of Representatives :
 - Part IV.—Both Houses of the Parliament :
 - Part V.—Powers of the Parliament :
- Chapter II.—The Executive Government :
- Chapter III.—The Judicature :
- Chapter IV.—Finance and Trade :
- Chapter V.—The States :
- Chapter VI.—New States :
- Chapter VII.—Miscellaneous.
- Chapter VIII.—Alteration of the Constitution.

The Schedule.

CHAPTER I.—THE PARLIAMENT.

PART I.—GENERAL.

1. The legislative power of the Commonwealth shall be vested in a Federal Parliament, which shall consist of the Queen, a Senate, and a House of Representatives, and which is hereinafter called "The Parliament," or "The Parliament of the Commonwealth."

2. A Governor-General appointed by the Queen shall be Her Majesty's representative in the Commonwealth, and shall have and may exercise in the Commonwealth during the Queen's pleasure, but subject to this Constitution, such powers and functions of the Queen as Her Majesty may be pleased to assign to him.

3. There shall be payable to the Queen out of the Consolidated Revenue Fund of the Commonwealth, for the salary of the Governor-General, an annual sum which, until the Parliament otherwise provides, shall be ten thousand pounds.

The salary of a Governor-General shall not be altered during his continuance in office.

4. The provisions of this Constitution relating to the Governor-General extend and apply to the Governor-General for the time being, or such person as the Queen may appoint to administer the Government of the Commonwealth; but no such person shall be entitled to receive any salary from the Commonwealth in respect of any other office during his administration of the Government of the Commonwealth.

5. The Governor-General may appoint such times for holding the sessions of the Parliament as he thinks fit, and may also from time to time, by Proclamation or otherwise, prorogue the Parliament, and may in like manner dissolve the House of Representatives.

After any general election the Parliament shall be summoned to meet not later than thirty days after the day appointed for the return of the writs.

The Parliament shall be summoned to meet not later than six months after the establishment of the Commonwealth.

6. There shall be a session of the Parliament once at least in every year, so that twelve months shall not intervene between the last sitting of the Parliament in one session and its first sitting in the next session.

PART II.—THE SENATE.

7. The Senate shall be composed of senators for each State, directly chosen by the people of the State, voting, until the Parliament otherwise provides, as one electorate.

But until the Parliament of the Commonwealth otherwise provides, the Parliament of the State of Queensland, if that State be an Original State, may make laws dividing the State into divisions and determining the number of senators to be chosen for each division, and in the absence of such provision the State shall be one electorate.

Until the Parliament otherwise provides there shall be six senators for each Original State. The Parliament may make laws increasing or diminishing the number of senators for each State, but so that equal representation of the several Original States shall be maintained and that no Original State shall have less than six senators.

The senators shall be chosen for a term of six years, and the names of the senators chosen for each State shall be certified by the Governor to the Governor-General.

8. The qualification of electors of senators shall be in each State that which is prescribed by this Constitution, or by the Parliament, as the qualification for electors of members of the House of Representatives; but in the choosing of senators each elector shall vote only once.

9. The Parliament of the Commonwealth may make laws prescribing the method of choosing senators, but so that the method shall be uniform for all the States. Subject to any such law, the Parliament of each State may make laws prescribing the method of choosing the senators for that State.

The Parliament of a State may make laws for determining the times and places of elections of senators for the State.

10. Until the Parliament otherwise provides, but subject to this Constitution, the laws in force in each State, for the time being, relating to elections for the more numerous House of the Parliament of the State shall, as nearly as practicable, apply to elections of senators for the State.

11. The Senate may proceed to the despatch of business, notwithstanding the failure of any State to provide for its representation in the Senate.

12. The Governor of any State may cause writs to be issued for elections of senators for the State. In case of the dissolution of the Senate the writs shall be issued within ten days from the proclamation of such dissolution.

13. As soon as may be after the Senate first meets, and after each first meeting of the Senate following a dissolution thereof, the Senate shall divide the senators chosen for each State into two classes, as nearly equal in number as practicable; and the places of the senators of the first class shall become vacant at the expiration of [the third year] *three years,** and the places of those of the second class at the expiration of [the sixth year] *six years,** from the beginning of their term of service; and afterwards the places of senators shall become vacant at the expiration of six years from the beginning of their term of service.†

The election to fill vacant places shall be made [in the year at the expiration of which] *within one year before** the places are to become vacant.

For the purpose of this section the term of service of a senator shall be taken to begin on the first day of [January] *July** following the day of his election, except in the cases of the first election and of the election next after any dissolution of the Senate, when it shall be taken to begin on the first day of [January] *July** preceding the day of his election.^{2†§}

14. Whenever the number of senators for a State is increased or diminished, the Parliament of the Commonwealth may make such provision for the vacating of the places of senators for the State as it deems necessary to maintain regularity in the rotation.

15. If the place of a senator becomes vacant before the expiration of his term of service, the Houses of Parliament of the State for which he was chosen shall, sitting and voting together, choose a person to hold the place until the expiration of the term, or until the election of a successor as hereinafter provided, whichever first happens. But if the Houses of Parliament of the State are not in session at the time when the vacancy is notified, the Governor of the State, with the advice of the Executive Council thereof, may appoint a person to hold the place until the expiration of fourteen days after the beginning of the next session of the Parliament of the State, or until the election of a successor, whichever first happens.

At the next general election of members of the House of Representatives, or at the next election of senators for the State, whichever first happens, a successor shall, if the term has not then expired, be chosen to hold the place from the date of his election until the expiration of the term.

The name of any senator so chosen or appointed shall be certified by the Governor of the State to the Governor-General.

16. The qualifications of a senator shall be the same as those of a member of the House of Representatives.

17. The Senate shall, before proceeding to the despatch of any other business, choose a senator to be the President of the Senate; and as often as the office of President becomes vacant the Senate shall again choose a senator to be the President.

The President shall cease to hold his office if he ceases to be a senator. He may be removed from office by a vote of the Senate, or he may resign his office or his seat by writing addressed to the Governor-General.

18. Before or during any absence of the President, the Senate may choose a senator to perform his duties in his absence.

19. A senator may, by writing addressed to the President, or to the Governor-General if there is no President or if the President is absent from the Commonwealth, resign his place, which thereupon shall become vacant.

20. The place of a senator shall become vacant if for two consecutive months of any session of the Parliament he, without the permission of the Senate, fails to attend the Senate.

* As amended by section 2 of the Constitution Alteration (Senate Elections) 1906. The words in square brackets have been repealed; amendments are shown in italics.

† Under sections 3 and 4 of the Constitution Alteration (Senate Elections) 1906, it was also provided that—

(a) The terms of service of the senators whose places would, but for this Act, become vacant at the expiration of the year One thousand nine hundred and nine are extended until the thirtieth day of June One thousand nine hundred and ten.

(b) The terms of service of the senators whose places would, but for this Act, become vacant at the expiration of the year One thousand nine hundred and twelve are extended until the thirtieth day of June One thousand nine hundred and thirteen.

(c) This Act shall not be taken to alter the time of beginning of the term of service of any senator elected in the year One thousand nine hundred and six.

‡ A bill was passed by the Commonwealth Parliament on the 2nd September, 1915, for the submission to the electors of a proposed law to alter section 13 by inserting after *three years* the words *and two months*, and after *six years* where mentioned the words *and four months*.

§ It was also proposed by the bill alluded to above to alter the foregoing paragraph so as to read thus:—For the purposes of this section the term of service of the senators elected in the year One thousand nine hundred and fourteen shall be taken to have begun on the first day of October, One thousand nine hundred and fourteen, and the term of service of a senator elected to fill a vacancy thereafter occurring in rotation shall be taken to begin on the day on which the place he is to fill becomes vacant, and the term of service of senators elected at an election next after a dissolution of the Senate shall be taken to begin on the day of the first meeting of the House of Representatives after dissolution. A writ was issued for a referendum (to be taken on the 11th December, 1915, at the same time as referendums for the alteration of the legislative powers of the Commonwealth), but the writs were withdrawn under authority of Act 51 of 1915. See also note to section 51.

21. Whenever a vacancy happens in the Senate, the President, or if there is no President or if the President is absent from the Commonwealth the Governor-General, shall notify the same to the Governor of the State in the representation of which the vacancy has happened.

22. Until the Parliament otherwise provides, the presence of at least one-third of the whole number of the senators shall be necessary to constitute a meeting of the Senate for the exercise of its powers.

23. Questions arising in the Senate shall be determined by a majority of votes, and each senator shall have one vote. The President shall in all cases be entitled to a vote; and when the votes are equal the question shall pass in the negative.

PART III.—THE HOUSE OF REPRESENTATIVES.

24. The House of Representatives shall be composed of members directly chosen by the people of the Commonwealth, and the number of such members shall be, as nearly as practicable, twice the number of the senators.

The number of members chosen in the several States shall be in proportion to the respective numbers of their people, and shall, until the Parliament otherwise provides, be determined, whenever necessary, in the following manner:—

- (i) A quota shall be ascertained by dividing the number of the people of the Commonwealth, as shewn by the latest statistics of the Commonwealth, by twice the number of the senators:
- (ii) The number of members to be chosen in each State shall be determined by dividing the number of the people of the State, as shewn by the latest statistics of the Commonwealth, by the quota; and if on such division there is a remainder greater than one-half of the quota, one more member shall be chosen in the State.

But notwithstanding anything in this section, five members at least shall be chosen in each Original State.

25. For the purposes of the last section, if by the law of any State all persons of any race are disqualified from voting at elections for the more numerous House of the Parliament of the State, then, in reckoning the number of the people of the State or of the Commonwealth, persons of that race resident in that State shall not be counted.

26. Notwithstanding anything in section twenty-four, the number of members to be chosen in each State at the first election shall be as follows:—

New South Wales	..	23	South Australia	..	6
Victoria	..	20	Tasmania	..	5
Queensland	..	8			

Provided that if Western Australia is an Original State, the numbers shall be as follows:—

New South Wales	..	26	South Australia	..	7
Victoria	..	23	Western Australia	..	5
Queensland	..	9	Tasmania	..	5

27. Subject to this Constitution, the Parliament may make laws for increasing or diminishing the number of the members of the House of Representatives.

28. Every House of Representatives shall continue for three years from the first meeting of the House, and no longer, but may be sooner dissolved by the Governor-General.

29. Until the Parliament of the Commonwealth otherwise provides, the Parliament of any State may make laws for determining the divisions in each State for which members of the House of Representatives may be chosen, and the number of members to be chosen for each division. A division shall not be formed out of parts of different States.

In the absence of other provision, each State shall be one electorate.

30. Until the Parliament otherwise provides, the qualification of electors of members of the House of Representatives shall be in each State that which is prescribed by the law of the State as the qualification of electors of the more numerous House of Parliament of the State; but in the choosing of members each elector shall vote only once.*

* The franchise qualification was determined by the Commonwealth Franchise Act 1902.

31. Until the Parliament otherwise provides, but subject to this Constitution, the laws in force in each State for the time being relating to elections for the more numerous House of the Parliament of the State shall, as nearly as practicable, apply to elections in the State of members of the House of Representatives.

32. The Governor-General in Council may cause writs to be issued for general elections of members of the House of Representatives.

After the first general election, the writs shall be issued within ten days from the expiry of a House of Representatives or from the proclamation of a dissolution thereof.

33. Whenever a vacancy happens in the House of Representatives, the Speaker shall issue his writ for the election of a new member, or if there is no Speaker or if he is absent from the Commonwealth the Governor-General in Council may issue the writ.

34. Until the Parliament otherwise provides, the qualifications of a member of the House of Representatives shall be as follows :—

- (i) He must be of the full age of twenty-one years, and must be an elector entitled to vote at the election of members of the House of Representatives, or a person qualified to become such elector, and must have been for three years at the least a resident within the limits of the Commonwealth as existing at the time when he is chosen :
- (ii) He must be a subject of the Queen, either natural-born or for at least five years naturalized under a law of the United Kingdom, or of a Colony which has become or becomes a State, or of the Commonwealth, or of a State.

35. The House of Representatives shall, before proceeding to the despatch of any other business, choose a member to be the Speaker of the House, and as often as the office of Speaker becomes vacant the House shall again choose a member to be the Speaker.

The Speaker shall cease to hold his office if he ceases to be a member. He may be removed from office by a vote of the House, or he may resign his office or his seat by writing addressed to the Governor-General.

36. Before or during any absence of the Speaker, the House of Representatives may choose a member to perform his duties in his absence.

37. A member may by writing addressed to the Speaker, or to the Governor-General if there is no Speaker or if the Speaker is absent from the Commonwealth, resign his place, which thereupon shall become vacant.

38. The place of a member shall become vacant if for two consecutive months of any session of the Parliament he, without the permission of the House, fails to attend the House.

39. Until the Parliament otherwise provides, the presence of at least one-third of the whole number of the members of the House of Representatives shall be necessary to constitute a meeting of the House for the exercise of its powers.

40. Questions arising in the House of Representatives shall be determined by a majority of votes other than that of the Speaker. The Speaker shall not vote unless the numbers are equal, and then he shall have a casting vote.

PART IV.—BOTH HOUSES OF THE PARLIAMENT.

41. No adult person who has or acquires a right to vote at elections for the more numerous House of the Parliament of a State shall, while the right continues, be prevented by any law of the Commonwealth from voting at elections for either House of the Parliament of the Commonwealth.

42. Every senator and every member of the House of Representatives shall before taking his seat make and subscribe before the Governor-General, or some person authorized by him, an oath or affirmation of allegiance in the form set forth in the schedule to this Constitution.

43. A member of either House of the Parliament shall be incapable of being chosen or of sitting as a member of the other House.

44. Any person who—

- (i) Is under any acknowledgment of allegiance, obedience, or adherence to a foreign power, or is a subject or a citizen or entitled to the rights or privileges of a subject or a citizen of a foreign power: or
- (ii) Is attainted of treason, or has been convicted and is under sentence, or subject to be sentenced, for any offence punishable under the law of the Commonwealth or of the State by imprisonment for one year or longer: or
- (iii) Is an undischarged bankrupt or insolvent: or
- (iv) Holds any office of profit under the Crown, or any pension payable during the pleasure of the Crown out of any of the revenues of the Commonwealth: or
- (v) Has any direct or indirect pecuniary interest in any agreement with the Public Service of the Commonwealth otherwise than as a member and in common with the other members of an incorporated company consisting of more than twenty-five persons:

shall be incapable of being chosen or of sitting as a senator or a member of the House of Representatives.

But sub-section iv. does not apply to the office of any of the Queen's Ministers of State for the Commonwealth, or of any of the Queen's Ministers for a State, or to the receipt of pay, half-pay, or a pension by any person as an officer or member of the Queen's navy or army, or to the receipt of pay as an officer or member of the naval or military forces of the Commonwealth by any person whose services are not wholly employed by the Commonwealth.

45. If a senator or member of the House of Representatives—

- (i) Becomes subject to any of the disabilities mentioned in the last preceding section: or
- (ii) Takes the benefit, whether by assignment, composition, or otherwise, of any law relating to bankrupt or insolvent debtors: or
- (iii) Directly or indirectly takes or agrees to take any fee or honorarium for services rendered to the Commonwealth, or for services rendered in the Parliament to any person or State:

his place shall thereupon become vacant.

46. Until the Parliament otherwise provides, any person declared by this Constitution to be incapable of sitting as a senator or as a member of the House of Representatives shall, for every day on which he so sits, be liable to pay the sum of one hundred pounds to any person who sues for it in any court of competent jurisdiction.

47. Until the Parliament otherwise provides, any question respecting the qualification of a senator or of a member of the House of Representatives, or respecting a vacancy in either House of the Parliament, and any question of a disputed election to either House, shall be determined by the House in which the question arises.

48. Until the Parliament otherwise provides, each senator and each member of the House of Representatives shall receive an allowance of four hundred pounds a year, to be reckoned from the day on which he takes his seat.*

49. The powers, privileges, and immunities of the Senate and of the House of Representatives, and of the members and the committees of each House, shall be such as are declared by the Parliament, and until declared shall be those of the Commons House of Parliament of the United Kingdom, and of its members and committees, at the establishment of the Commonwealth.

50. Each House of the Parliament may make rules and orders with respect to—

- (i) The mode in which its powers, privileges, and immunities may be exercised and upheld;
- (ii) The order and conduct of its business and proceedings either separately or jointly with the other House.

* By the Parliamentary Allowances Act 1907, the amount of the allowance was increased to £600 a year; and by the Parliamentary Allowances Act 1920 to £1,000 a year. (The latter Act also apportioned special allowances to the President of the Senate; the Speaker of the House of Representatives; the Chairmen of Committees in both Houses; and the Opposition Leaders in both Houses.)

PART V.—POWERS OF THE PARLIAMENT.* † ‡

51. The Parliament shall, subject to this Constitution, have power to make laws for the peace, order, and good government of the Commonwealth with respect to—

- (i) Trade and commerce with other countries, and among the States :* †
- (ii) Taxation ; but so as not to discriminate between States or parts of States :
- (iii) Bounties on the production or export of goods, but so that such bounties shall be uniform throughout the Commonwealth :
- (iv) Borrowing money on the public credit of the Commonwealth :
- (v) Postal, telegraphic, telephonic, and other like services :
- (vi) The naval and military defence of the Commonwealth and of the several States, and the control of the forces to execute and maintain the laws of the Commonwealth :
- (vii) Lighthouses, lightships, beacons and buoys :
- (viii) Astronomical and meteorological observations :
- (ix) Quarantine :
- (x) Fisheries in Australian waters beyond territorial limits :
- (xi) Census and statistics :
- (xii) Currency, coinage, and legal tender :
- (xiii) Banking, other than State banking ; also State banking extending beyond the limits of the State concerned, the incorporation of banks, and the issue of paper money :

* Two proposed laws for the alteration of the Constitution were submitted to the people for acceptance or rejection on the 26th April, 1911. They were (A) The Constitution Alteration (Legislative Powers) 1910, and (B) the Constitution Alteration (Monopolies) 1910.

(A) *Constitution Alteration (Legislative Powers) 1910.* The object of this proposed law was to extend the powers of the Commonwealth Government (under section 51 of the Constitution) in four directions, viz.—(a) Trade and Commerce, (b) Corporations, (c) Industrial matters, and (d) Trusts and monopolies.

(a) *Trade and Commerce.* In Section 51, para. (i.) of the Constitution, it was proposed to omit the words "with other countries, and among the States," so as to give the Commonwealth Parliament power to legislate with respect to trade and commerce, without limitation.

(b) *Corporations.* It was proposed to omit the words (para. xx.) "Foreign corporations, and trading or financial corporations formed within the limits of the Commonwealth," and to insert in lieu thereof the words—"Corporations including (a) the creation, dissolution, regulation, and control of corporations ; (b) corporations formed under the law of a State (except any corporation formed solely for religious, charitable, scientific or artistic purposes, and not for the acquisition of gain by the corporation or its members), including their dissolution, regulation and control ; and (c) foreign corporations, including their regulation and control."

(c) *Industrial Matters.* In para. xxxv. it was proposed to omit the words "Conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State," and to insert in lieu thereof the words "labour and employment, including (a) the wages and conditions of labour and employment in any trade, industry, or calling ; and (b) the prevention and settlement of industrial disputes, including disputes in relation to employment on or about railways, the property of any State."

(d) *Trusts and Monopolies.* It was proposed to amend Section 51 of the Constitution by adding at the end thereof the following paragraph :—" (xl.) Combinations and monopolies in relation to the production, manufacture, or supply of goods or services."

(B) *Constitution Alteration (Monopolies) 1910.* The object of this proposed law was to alter the Constitution by inserting, after Section 51 thereof, the following section :—" 51A. When each House of Parliament, in the same session, has by resolution declared that the industry or business of producing, manufacturing, or supplying goods, or of supplying any specified services, is the subject of any monopoly the Parliament shall have power to make laws for carrying on the industry or business by or under the control of the Commonwealth, and acquiring for that purpose on just terms any property used in connection with the industry or business."

Neither of the proposed laws was approved by the people.

On the 31st May, 1913, the date of the Parliamentary elections, the same proposed alterations were again submitted to the people as five distinct laws, with an additional one whereby the conditions of employment and the settlement of disputes relating thereto in the several State railway services might be brought within the jurisdiction of the Commonwealth. All six proposed laws were negatived by the people.—See section XXV. §2.

† On the 15th July, 1915, the Commonwealth Parliament passed a bill for the submission to the electors of proposed laws to amend the Constitution in regard to the legislative powers of the Commonwealth Parliament. The proposed amendments differed somewhat from those submitted to the electors in the years 1911 and 1913. Thus in regard to (A) (b) *Corporations* (see 1 above) it was proposed to specifically exclude municipal and governmental corporations. (A) (c) was modified to read thus after "to insert in lieu (in their stead) the words"—Including (a) Labour, (b) Employment and unemployment, (c) The terms and conditions of labour and employment in any trade, industry, occupation, or calling, (d) The rights and obligations of employers and employees, (e) Strikes and lockouts, (f) The maintenance of industrial peace, (g) The settlement of industrial disputes. With regard to railway disputes it was proposed to insert after paragraph (xxxv.) of section 51 the following paragraph :—" (xxxv. A.) Conciliation and arbitration for the prevention and settlement of industrial disputes in relation to employment in the railway service of a State. (A) (d) was modified to read (xl.) Trusts, combinations, monopolies, and arrangements in relation to (a) the production, manufacture, or supply of goods, or the supply of services, or (b) the ownership of the means of production, manufacture, or supply of goods, or supply of services. (B) (see 1 above) was modified as follows :—After "has by resolution" the words "passed by an absolute majority of its members" were added, and an additional subsection was inserted to the effect that the section was not to apply to any industry or business conducted or carried on by the Government of a State, or any public authority constituted under a State. Writs were issued for referendums to be held on the 11th December, 1915, but they were withdrawn under Act 51 of 1915.

‡ On 28th October, 1919, a further submission of proposals to alter the Constitution was decreed by Parliament. These also related to the extension of the legislative powers of the Commonwealth in regard to industrial disputes, and to the nationalization of monopolies. Neither of the proposals was approved by the people.

- (xiv) Insurance, other than State insurance; also State insurance extending beyond the limits of the State concerned;
- (xv) Weights and measures;
- (xvi) Bills of exchange and promissory notes;
- (xvii) Bankruptcy and insolvency;
- (xviii) Copyrights, patents of inventions and designs, and trade marks;
- (xix) Naturalization and aliens;
- (xx) Foreign corporations, and trading or financial corporations formed within the limits of the Commonwealth:*
- (xxi) Marriage;
- (xxii) Divorce and matrimonial causes; and in relation thereto, parental rights, and the custody and guardianship of infants;
- (xxiii) Invalid and old-age pensions;
- (xxiv) The service and execution throughout the Commonwealth of the civil and criminal process and the judgments of the Courts of the States;
- (xxv) The recognition throughout the Commonwealth of the laws, the public Acts and records, and the judicial proceedings of the States;
- (xxvi) The people of any race, other than the aboriginal race in any State, for whom it is deemed necessary to make special laws;
- (xxvii) Immigration and emigration;
- (xxviii) The influx of criminals;
- (xxix) External affairs;
- (xxx) The relations of the Commonwealth with the islands of the Pacific;
- (xxxi) The acquisition of property on just terms from any State or person for any purpose in respect of which the Parliament has power to make laws;
- (xxxii) The control of railways with respect to transport for the naval and military purposes of the Commonwealth;
- (xxxiii) The acquisition, with the consent of a State, of any railways of the State on terms arranged between the Commonwealth and the State;
- (xxxiv) Railway construction and extension in any State with the consent of that State;
- (xxxv) Conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State:*
- (xxxvi) Matters in respect of which this Constitution makes provision until the Parliament otherwise provides;
- (xxxvii) Matters referred to the Parliament of the Commonwealth by the Parliament or Parliaments of any State or States, but so that the law shall extend only to States by whose Parliaments the matter is referred, or which afterwards adopt the law;
- (xxxviii) The exercise within the Commonwealth, at the request or with the concurrence of the Parliaments of all the States directly concerned, of any power which can at the establishment of this Constitution be exercised only by the Parliament of the United Kingdom or by the Federal Council of Australasia;
- (xxxix) Matters incidental to the execution of any power vested by this Constitution in the Parliament or in either House thereof, or in the Government of the Commonwealth, or in the Federal Judicature, or in any department or officer of the Commonwealth.

52. The Parliament shall, subject to this Constitution, have exclusive power to make laws for the peace, order, and good government of the Commonwealth, with respect to—

- (i) The seat of Government of the Commonwealth, and all places acquired by the Commonwealth for public purposes;
- (ii) Matters relating to any department of the public service the control of which is by this Constitution transferred to the Executive Government of the Commonwealth;
- (iii) Other matters declared by this Constitution to be within the exclusive power of the Parliament.

* See footnotes on previous page.

53. Proposed laws appropriating revenue or moneys, or imposing taxation, shall not originate in the Senate. But a proposed law shall not be taken to appropriate revenue or moneys, or to impose taxation, by reason only of its containing provisions for the imposition or appropriation of fines or other pecuniary penalties, or for the demand or payment or appropriation of fees for licenses, or fees for services under the proposed law.

The Senate may not amend proposed laws imposing taxation, or proposed laws appropriating revenue or moneys for the ordinary annual services of the Government.

The Senate may not amend any proposed laws so as to increase any proposed charge or burden on the people.

The Senate may at any stage return to the House of Representatives any proposed law which the Senate may not amend, requesting, by message, the omission or amendment of any items or provisions therein. And the House of Representatives may, if it thinks fit, make any of such omissions or amendments, with or without modifications.

Except as provided in this section, the Senate shall have equal power with the House of Representatives in respect of all proposed laws.

54. The proposed law which appropriates revenue or moneys for the ordinary annual services of the Government shall deal only with such appropriation.

55. Laws imposing taxation shall deal only with the imposition of taxation, and any provisions therein dealing with any other matter shall be of no effect.

Laws imposing taxation, except laws imposing duties of customs or of excise, shall deal with one subject of taxation only; but laws imposing duties of customs shall deal with duties of customs only, and laws imposing duties of excise shall deal with duties of excise only.

56. A vote, resolution, or proposed law for the appropriation of revenue or moneys shall not be passed unless the purpose of the appropriation has in the same session been recommended by message of the Governor-General to the House in which the proposal originated.

57. If the House of Representatives passes any proposed law, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, and if after an interval of three months the House of Representatives, in the same or the next session, again passes the proposed law with or without any amendments which have been made, suggested, or agreed to by the Senate, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, the Governor-General may dissolve the Senate and the House of Representatives simultaneously. But such dissolution shall not take place within six months before the date of the expiry of the House of Representatives by effluxion of time.

If after such dissolution the House of Representatives again passes the proposed law, with or without any amendments which have been made, suggested, or agreed to by the Senate, and the Senate rejects or fails to pass it, or passes it with amendments to which the House of Representatives will not agree, the Governor-General may convene a joint sitting of the members of the Senate and of the House of Representatives.

The members present at the joint sitting may deliberate and shall vote together upon the proposed law as last proposed by the House of Representatives, and upon amendments, if any, which have been made therein by one House and not agreed to by the other, and any such amendments which are affirmed by an absolute majority of the total number of the members of the Senate and House of Representatives shall be taken to have been carried, and if the proposed law, with the amendments, if any, so carried is affirmed by an absolute majority of the total number of members of the Senate and House of Representatives, it shall be taken to have been duly passed by both Houses of the Parliament, and shall be presented to the Governor-General for the Queen's assent.

58. When a proposed law passed by both Houses of the Parliament is presented to the Governor-General for the Queen's assent, he shall declare, according to his discretion, but subject to this Constitution, that he assents in the Queen's name, or that he withholds assent, or that he reserves the law for the Queen's pleasure.

The Governor-General may return to the House in which it originated any proposed law so presented to him, and may transmit therewith any amendments which he may recommend, and the Houses may deal with the recommendation.

59. The Queen may disallow any law within one year from the Governor-General's assent, and such disallowance on being made known by the Governor-General by speech or message to each of the Houses of the Parliament, or by Proclamation, shall annul the law from the day when the disallowance is so made known.

60. A proposed law reserved for the Queen's pleasure shall not have any force unless and until within two years from the day on which it was presented to the Governor-General for the Queen's assent the Governor-General makes known, by speech or message to each of the Houses of Parliament, or by Proclamation, that it has received the Queen's assent.

CHAPTER II.—THE EXECUTIVE GOVERNMENT.

61. The executive power of the Commonwealth is vested in the Queen and is exercisable by the Governor-General as the Queen's representative, and extends to the execution and maintenance of this Constitution, and of the laws of the Commonwealth.

62. There shall be a Federal Executive Council to advise the Governor-General in the government of the Commonwealth, and the members of the Council shall be chosen and summoned by the Governor-General and sworn as Executive Councillors, and shall hold office during his pleasure.

63. The provisions of this Constitution referring to the Governor-General in Council shall be construed as referring to the Governor-General acting with the advice of the Federal Executive Council.

64. The Governor-General may appoint officers to administer such departments of State of the Commonwealth as the Governor-General in Council may establish.

Such officers shall hold office during the pleasure of the Governor-General. They shall be members of the Federal Executive Council, and shall be the Queen's Ministers of State for the Commonwealth.

After the first general election no Minister of State shall hold office for a longer period than three months unless he is or becomes a senator or a member of the House of Representatives.

65. Until the Parliament otherwise provides, the Ministers of State shall not exceed seven in number, and shall hold such offices as the Parliament prescribes, or, in the absence of provision, as the Governor-General directs.*

66. There shall be payable to the Queen, out of the Consolidated Revenue Fund of the Commonwealth, for the salaries of the Ministers of State, an annual sum which, until the Parliament otherwise provides, shall not exceed twelve thousand pounds a year.*

67. Until the Parliament otherwise provides, the appointment and removal of all other officers of the Executive Government of the Commonwealth shall be vested in the Governor-General in Council, unless the appointment is delegated by the Governor-General in Council or by a law of the Commonwealth to some other authority.

68. The command in chief of the naval and military forces of the Commonwealth is vested in the Governor-General as the Queen's representative.

69. On a date or dates to be proclaimed by the Governor-General after the establishment of the Commonwealth the following departments of the public service in each State shall be transferred to the Commonwealth:—†

Posts, telegraphs, and telephones :

Naval and military defence :

Lighthouses, lightships, beacons, and buoys :
Quarantine.

But the departments of customs and of excise in each State shall become transferred to the Commonwealth on its establishment.

70. In respect of matters which, under this Constitution, pass to the Executive Government of the Commonwealth, all powers and functions which at the establishment of the Commonwealth are vested in the Governor of a Colony, or in the Governor of a Colony with the advice of his Executive Council, or in any authority of a Colony, shall vest in the Governor-General, or in the Governor-General in Council, or in the authority exercising similar powers under the Commonwealth, as the case requires.

* By the Ministers of State Acts 1915 and 1917, the Ministers of State may exceed seven, but shall not exceed nine. £15,300 annually was allotted by these Acts for their salaries; and £800 per annum each was added by the Parliamentary Allowances Act 1920.

† As to departments and dates of transfer see Section XIX.—COMMONWEALTH FINANCE, § 1 hereinafter.

CHAPTER III.—THE JUDICATURE.

71. The judicial power of the Commonwealth shall be vested in a Federal Supreme Court, to be called the High Court of Australia, and in such other federal courts as the Parliament creates, and in such other courts as it invests with federal jurisdiction. The High Court shall consist of a Chief Justice, and so many other Justices, not less than two, as the Parliament prescribes.

72. The Justices of the High Court and of the other Courts created by the Parliament—

- (i) Shall be appointed by the Governor-General in Council :
- (ii) Shall not be removed except by the Governor-General in Council, on an address from both Houses of the Parliament in the same session, praying for such removal on the ground of proved misbehaviour or incapacity :
- (iii) Shall receive such remuneration as the Parliament may fix : but the remuneration shall not be diminished during their continuance in office.

73. The High Court shall have jurisdiction, with such exceptions and subject to such regulations as the Parliament prescribes, to hear and determine appeals from all judgments, decrees, orders, and sentences—

- (i) Of any Justice or Justices exercising the original jurisdiction of the High Court :
- (ii) Of any other federal court, or court exercising federal jurisdiction ; or of the Supreme Court of any State, or of any other court of any State from which at the establishment of the Commonwealth an appeal lies to the Queen in Council :

- (iii) Of the Inter-State Commission, but as to questions of law only :

and the judgment of the High Court in all such cases shall be final and conclusive.

But no exception or regulation prescribed by the Parliament shall prevent the High Court from hearing and determining any appeal from the Supreme Court of a State in any matter in which at the establishment of the Commonwealth an appeal lies from such Supreme Court to the Queen in Council.

Until the Parliament otherwise provides, the conditions of and restrictions on appeals to the Queen in Council from the Supreme Courts of the several States shall be applicable to appeals from them to the High Court.

74. No appeal shall be permitted to the Queen in Council from decision of the High Court upon any question, howsoever arising, as to the limits *inter se* of the Constitutional powers of the Commonwealth and those of any State or States, or as to the limits *inter se* of the Constitutional powers of any two or more States, unless the High Court shall certify that the question is one which ought to be determined by Her Majesty in Council.

The High Court may so certify if satisfied that for any special reason the certificate should be granted, and thereupon an appeal shall lie to Her Majesty in Council on the question without further leave.

Except as provided in this section, this Constitution shall not impair any right which the Queen may be pleased to exercise by virtue of Her Royal prerogative to grant special leave of appeal from the High Court to Her Majesty in Council. The Parliament may make laws limiting the matters in which such leave may be asked, but proposed laws containing any such limitation shall be reserved by the Governor-General for Her Majesty's pleasure.

75. In all matters—

- (i) Arising under any treaty :
- (ii) Affecting consuls or other representatives of other countries :
- (iii) In which the Commonwealth, or a person suing or being sued on behalf of the Commonwealth, is a party :
- (iv) Between States, or between residents of different States, or between a State and a resident of another State :
- (v) In which a writ of Mandamus or prohibition or an injunction is sought against an officer of the Commonwealth :

the High Court shall have original jurisdiction.

76. The Parliament may make laws conferring original jurisdiction on the High Court in any matter—

- (i) Arising under this Constitution, or involving its interpretation :
- (ii) Arising under any laws made by the Parliament :
- (iii) Of Admiralty and maritime jurisdiction :
- (iv) Relating to the same subject-matter claimed under the laws of different States.

77. With respect to any of the matters mentioned in the last two sections the Parliament may make laws—

- (i) Defining the jurisdiction of any federal court other than the High Court :
- (ii) Defining the extent to which the jurisdiction of any federal court shall be exclusive of that which belongs to or is invested in the courts of the States :
- (iii) Investing any court of a State with federal jurisdiction.

78. The Parliament may make laws conferring rights to proceed against the Commonwealth or a State in respect of matters within the limits of the judicial power.

79. The federal jurisdiction of any court may be exercised by such number of judges as the Parliament prescribes.

80. The trial on indictment of any offence against any law of the Commonwealth shall be by jury, and every such trial shall be held in the State where the offence was committed, and if the offence was not committed within any State the trial shall be held at such place or places as the Parliament prescribes.

CHAPTER IV.—FINANCE AND TRADE.

81. All revenues or moneys raised or received by the Executive Government of the Commonwealth shall form one Consolidated Revenue Fund, to be appropriated for the purposes of the Commonwealth in the manner and subject to the charges and liabilities imposed by this Constitution.

82. The costs, charges, and expenses incident to the collection, management, and receipt of the Consolidated Revenue Fund shall form the first charge thereon ; and the revenue of the Commonwealth shall in the first instance be applied to the payment of the expenditure of the Commonwealth.

83. No money shall be drawn from the Treasury of the Commonwealth except under appropriation made by law.

But until the expiration of one month after the first meeting of the Parliament the Governor-General in Council may draw from the Treasury and expend such moneys as may be necessary for the maintenance of any department transferred to the Commonwealth and for the holding of the first elections for the Parliament.

84. When any department of the public service of a State becomes transferred to the Commonwealth, all officers of the department shall become subject to the control of the Executive Government of the Commonwealth.

Any such officer who is not retained in the service of the Commonwealth shall, unless he is appointed to some other office of equal emolument in the public service of the State, be entitled to receive from the State any pension, gratuity, or other compensation, payable under the law of the State on the abolition of his office.

Any such officer who is retained in the service of the Commonwealth shall preserve all his existing and accruing rights, and shall be entitled to retire from office at the time, and on the pension or retiring allowance, which would be permitted by the law of the State if his service with the Commonwealth were a continuation of his service with the State. Such pension or retiring allowance shall be paid to him by the Commonwealth ; but the State shall pay to the Commonwealth a part thereof, to be calculated on the proportion which his term of service with the State bears to his whole term of service, and for the purpose of the calculation his salary shall be taken to be that paid to him by the State at the time of transfer.

Any officer who is, at the establishment of the Commonwealth, in the public service of a State, and who is, by consent of the Governor of the State with the advice of the Executive Council thereof, transferred to the public service of the Commonwealth, shall have the same rights as if he had been an officer of a department transferred to the Commonwealth and were retained in the service of the Commonwealth.

85. When any department of the public service of a State is transferred to the Commonwealth—

- (i) All property of the State of any kind, used exclusively in connexion with the department, shall become vested in the Commonwealth; but, in the case of the departments controlling customs and excise and bounties, for such time only as the Governor-General in Council may declare to be necessary:
- (ii) The Commonwealth may acquire any property of the State, of any kind used, but not exclusively used in connexion with the department; the value thereof shall, if no agreement can be made, be ascertained in, as nearly as may be, the manner in which the value of land, or of an interest in land, taken by the State for public purposes is ascertained under the law of the State in force at the establishment of the Commonwealth:
- (iii) The Commonwealth shall compensate the State for the value of any property passing to the Commonwealth under this section: if no agreement can be made as to the mode of compensation, it shall be determined under laws to be made by the Parliament:
- (iv) The Commonwealth shall, at the date of the transfer, assume the current obligations of the State in respect of the department transferred.

86. On the establishment of the Commonwealth, the collection and control of duties of customs and of excise, and the control of the payment of bounties, shall pass to the Executive Government of the Commonwealth.

87. During a period of ten years after the establishment of the Commonwealth and thereafter until the Parliament otherwise provides, of the net revenue of the Commonwealth from duties of customs and of excise not more than one-fourth shall be applied annually by the Commonwealth towards its expenditure.

The balance shall, in accordance with this Constitution, be paid to the several States, or applied to the payment of interest on debts of the several States taken over by the Commonwealth.*

88. Uniform duties of customs shall be imposed within two years after the establishment of the Commonwealth.†

89. Until the imposition of uniform duties of customs—

- (i) The Commonwealth shall credit to each State the revenues collected therein by the Commonwealth.
- (ii) The Commonwealth shall debit to each State—
 - (a) The expenditure therein of the Commonwealth incurred solely for the maintenance or continuance, as at the time of transfer, of any department transferred from the State to the Commonwealth;
 - (b) The proportion of the State, according to the number of its people, in the other expenditure of the Commonwealth.
- (iii) The Commonwealth shall pay to each State month by month the balance (if any) in favour of the State.

90. On the imposition of uniform duties of customs the power of the Parliament to impose duties of customs and of excise, and to grant bounties on the production or export of goods, shall become exclusive.

On the imposition of uniform duties of customs all laws of the several States imposing duties of customs or of excise, or offering bounties on the production or export of goods, shall cease to have effect, but any grant of or agreement for any such bounty lawfully made by or under the authority of the Government of any State shall be taken to be good if made before the thirtieth day of June, one thousand eight hundred and ninety-eight, and not otherwise.

91. Nothing in this Constitution prohibits a State from granting any aid to or bounty on mining for gold, silver, or other metals, nor from granting, with the consent of both Houses of the Parliament of the Commonwealth expressed by resolution, any aid to or bounty on the production or export of goods.

* This has been known as the Braddon clause. The Surplus Revenue Act 1910 provides for the termination of this clause as from the 31st December, 1910, and for the payment to the States of twenty-five shillings per head of population until the 30th June, 1920, or thereafter, until Parliament otherwise provides, subject to certain adjustments for the year ended 30th June, 1911. For further information see Section XIX. hereinafter.

† Uniform customs duties were imposed by the Customs Tariff 1902, as from 8th October, 1901.

92. On the imposition of uniform duties of customs, trade, commerce, and intercourse among the States, whether by means of internal carriage or ocean navigation, shall be absolutely free.

But notwithstanding anything in this Constitution, goods imported before the imposition of uniform duties of customs into any State, or into any Colony which, whilst the goods remain therein, becomes a State, shall, on thence passing into another State within two years after the imposition of such duties, be liable to any duty chargeable on the importation of such goods into the Commonwealth, less any duty paid in respect of the goods on their importation.

93. During the first five years after the imposition of uniform duties of customs and thereafter until the Parliament otherwise provides—

(i) The duties of customs chargeable on goods imported into a State and afterwards passing into another State for consumption, and the duties of excise paid on goods produced or manufactured in a State and afterwards passing into another State for consumption, shall be taken to have been collected not in the former but in the latter State :

(ii) Subject to the last sub-section, the Commonwealth shall credit revenue, debit expenditure, and pay balances to the several States as prescribed by the period preceding the imposition of uniform duties of customs.*

94. After five years from the imposition of uniform duties of customs, the Parliament may provide, on such basis as it deems fair, for the monthly payment to the several States of all surplus revenue of the Commonwealth.

95. Notwithstanding anything in this Constitution, the Parliament of the State of Western Australia, if that State be an original State, may, during the first five years after the imposition of uniform duties of customs, impose duties of customs on goods passing into that State and not originally imported from beyond the limits of the Commonwealth ; and such duties shall be collected by the Commonwealth.

But any duty so imposed on any goods shall not exceed during the first of such years the duty chargeable on the goods under the law of Western Australia in force at the imposition of uniform duties, and shall not exceed during the second, third, fourth, and fifth of such years respectively, four-fifths, three-fifths, two-fifths, and one-fifth of such latter duty, and all duties imposed under this section shall cease at the expiration of the fifth year after the imposition of uniform duties.

If at any time during the five years the duty on any goods under this section is higher than the duty imposed by the Commonwealth on the importation of the like goods, then such higher duty shall be collected on the goods when imported into Western Australia from beyond the limits of the Commonwealth.

96. During a period of ten years after the establishment of the Commonwealth and thereafter until the Parliament otherwise provides, the Parliament may grant financial assistance to any State on such terms and conditions as the Parliament thinks fit.

97. Until the Parliament otherwise provides, the laws in force in any Colony which has become or becomes a State with respect to the receipt of revenue and the expenditure of money on account of the Government of the Colony, and the review and audit of such receipt and expenditure, shall apply to the receipt of revenue and the expenditure of money on account of the Commonwealth in the State in the same manner as if the Commonwealth, or the Government or an officer of the Commonwealth, were mentioned whenever the Colony, or the Government or an officer of the Colony, is mentioned.

98. The power of the Parliament to make laws with respect to trade and commerce extends to navigation and shipping, and to railways the property of any State.

99. The Commonwealth shall not, by any law or regulation of trade, commerce, or revenue, give preference to one State or any part thereof over another State or any part thereof.

100. The Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a State or of the residents therein to the reasonable use of the waters of rivers for conservation or irrigation.

* The Surplus Revenue Act 1908, which was amended by the Surplus Revenue Act 1910, states that the provisions of Section 93 of the Constitution shall expire on the date of the commencement of the Surplus Revenue Act 1908, that is, on 13th June, 1908, and also makes provisions in lieu of the expired provisions. The Surplus Revenue Act 1910 repeals the greater part of the provisions of the Act of 1908. See footnote to Section 87 of this Act.

101. There shall be an Inter-State Commission, with such powers of adjudication and administration as the Parliament deems necessary for the execution and maintenance, within the Commonwealth, of the provisions of this Constitution relating to trade and commerce, and of all laws made thereunder.*

102. The Parliament may by any law with respect to trade or commerce forbid, as to railways, any preference or discrimination by any State, or by any authority constituted under a State, if such preference or discrimination is undue and unreasonable, or unjust to any State, due regard being had to the financial responsibilities incurred by any State in connexion with the construction and maintenance of its railways. But no preference or discrimination shall, within the meaning of this section, be taken to be undue and unreasonable, or unjust to any State, unless so adjudged by the Inter-State Commission.

103. The members of the Inter-State Commission—

(i) Shall be appointed by the Governor-General in Council :

(ii) Shall hold office for seven years, but may be removed within that time by the Governor-General in Council, on an address from both Houses of Parliament in the same session praying for such removal on the ground of proved misbehaviour or incapacity :

(iii) Shall receive such remuneration as the Parliament may fix ; but such remuneration shall not be diminished during their continuance in office.

104. Nothing in this Constitution shall render unlawful any rate for carriage of goods upon a railway, the property of a State, if the rate is deemed by the Inter-State Commission to be necessary for the development of the territory of the State, and if the rate applies equally to goods within the State and to goods passing into the State from other States.

105. The Parliament may take over from the States their public debts [as existing at the establishment of the Commonwealth],† or a proportion thereof according to the respective numbers of their people as shewn by the latest statistics of the Commonwealth, and may convert, renew, or consolidate such debts, or any part thereof ; and the State shall indemnify the Commonwealth in respect of the debts taken over, and thereafter the interest payable in respect of the debts shall be deducted and retained from the portions of the surplus revenue of the Commonwealth payable to the several States, or if such surplus is insufficient, or if there is no surplus, then the deficiency or the whole amount shall be paid by the*several States.

CHAPTER V.—THE STATES.

106. The Constitution of each State of the Commonwealth shall, subject to this Constitution, continue as at the establishment of the Commonwealth, or as at the admission or establishment of the State, as the case may be, until altered in accordance with the Constitution of the State.

107. Every power of the Parliament of a Colony which has become or becomes a State, shall, unless it is by this Constitution exclusively vested in the Parliament of the Commonwealth or withdrawn from the Parliament of the State, continue as at the establishment of the Commonwealth, or as at the admission or establishment of the State, as the case may be.

108. Every law in force in a Colony which has become or becomes a State, and relating to any matter within the powers of the Parliament of the Commonwealth, shall, subject to this Constitution, continue in force in the State ; and, until provision is made in that behalf by the Parliament of the Commonwealth, the Parliament of the State shall have such powers of alteration and of repeal in respect of any such law as the Parliament of the Colony had until the Colony became a State.

109. When a law of a State is inconsistent with a law of the Commonwealth, the latter shall prevail, and the former shall, to the extent of the inconsistency, be invalid

110. The provisions of this Constitution relating to the Governor of a State extend and apply to the Governor for the time being of the State, or other chief executive officer or administrator of the government of the State.

* The Commission was brought into existence in 1913, under Act No. 33 of 1912, by the appointment of Commissioners for seven years. This period has expired, but no fresh appointments have been made.

† Under Section 2 of the Constitution Alteration (State Debts) 1909, the words in square brackets are omitted.

111. The Parliament of a State may surrender any part of the State to the Commonwealth, and upon such surrender, and the acceptance thereof by the Commonwealth, such part of the State shall become subject to the exclusive jurisdiction of the Commonwealth.

112. After uniform duties of customs have been imposed, a State may levy on imports or exports, or on goods passing into or out of the State, such charges as may be necessary for executing the inspection laws of the State; but the net produce of all charges so levied shall be for the use of the Commonwealth; and any such inspection laws may be annulled by the Parliament of the Commonwealth.

113. All fermented, distilled, or other intoxicating liquids passing into any State or remaining therein for use, consumption, sale, or storage, shall be subject to the laws of the State as if such liquids had been produced in the State.

114. A State shall not, without the consent of the Parliament of the Commonwealth, raise or maintain any naval or military force, or impose any tax on property of any kind belonging to the Commonwealth, nor shall the Commonwealth impose any tax on property of any kind belonging to a State.

115. A State shall not coin money, nor make anything but gold and silver coin a legal tender in payment of debts.

116. The Commonwealth shall not make any laws for establishing any religion, or for imposing any religious observance, or for prohibiting the free exercise of any religion, and no religious test shall be required as a qualification for any office or public trust under the Commonwealth.

117. A subject of the Queen, resident in any State, shall not be subject in any other State to any disability or discrimination which would not be equally applicable to him if he were a subject of the Queen resident in such other State.

118. Full faith and credit shall be given, throughout the Commonwealth, to the laws, the public Acts and records, and the judicial proceedings of every State.

119. The Commonwealth shall protect every State against invasion and, on the application of the Executive Government of the State, against domestic violence.

120. Every State shall make provision for the detention in its prisons of persons accused or convicted of offences against the laws of the Commonwealth, and for the punishment of persons convicted of such offences, and the Parliament of the Commonwealth may make laws to give effect to this provision.

CHAPTER VI.—NEW STATES.

121. The Parliament may admit to the Commonwealth or establish new States, and may upon such admission or establishment make or impose such terms and conditions, including the extent of representation in either House of the Parliament, as it thinks fit.

122. The Parliament may make laws for the government of any territory surrendered by any State to and accepted by the Commonwealth, or of any territory placed by the Queen under the authority of and accepted by the Commonwealth, or otherwise acquired by the Commonwealth, and may allow the representation of such territory in either House of the Parliament to the extent and on the terms which it thinks fit.

123. The Parliament of the Commonwealth may, with the consent of the Parliament of a State, and the approval of the majority of the electors of the State voting upon the question, increase, diminish, or otherwise alter the limits of the State, upon such terms and conditions as may be agreed on, and may, with the like consent, make provision respecting the effect and operation of any increase or diminution or alteration of territory in relation to any State affected.

124. A new State may be formed by separation of territory from a State, but only with consent of the Parliament thereof, and a new State may be formed by the union of two or more States or parts of States, but only with the consent of the Parliaments of the States affected.

CHAPTER VII.—MISCELLANEOUS.

125. The seat of Government of the Commonwealth shall be determined by the Parliament, and shall be within territory which shall have been granted to or acquired by the Commonwealth, and shall be vested in and belong to the Commonwealth, and shall be in the State of New South Wales, and be distant not less than one hundred miles from Sydney.

Such territory shall contain an area of not less than one hundred square miles, and such portion thereof as shall consist of Crown lands shall be granted to the Commonwealth without any payment therefor.

The Parliament shall sit at Melbourne until it meet at the seat of Government.

126. The Queen may authorise the Governor-General to appoint any person, or any persons jointly or severally, to be his deputy or deputies within any part of the Commonwealth, and in that capacity to exercise during the pleasure of the Governor-General such powers and functions of the Governor-General as he thinks fit to assign to such deputy or deputies, subject to any limitations expressed or directions given by the Queen : but the appointment of such deputy or deputies shall not affect the exercise by the Governor-General himself of any power or function.

127. In reckoning the numbers of the people of the Commonwealth, or of a State or other part of the Commonwealth, aboriginal natives shall not be counted.

CHAPTER VIII.—ALTERATION OF THE CONSTITUTION.*

128. This Constitution shall not be altered except in the following manner :—

The proposed law for the alteration thereof must be passed by an absolute majority of each House of the Parliament, and not less than two nor more than six months after its passage through both Houses the proposed law shall be submitted in each State to the electors qualified to vote for the election of members of the House of Representatives.†

But if either House passes any such proposed law by an absolute majority, and the other House rejects or fails to pass it or passes it with any amendment to which the first-mentioned House will not agree, and if after an interval of three months the first-mentioned House in the same or the next session again passes the proposed law by an absolute majority with or without any amendment which has been made or agreed to by the other House, and such other House rejects or fails to pass it or passes it with any amendment to which the first-mentioned House will not agree, the Governor-General may submit the proposed law as last proposed by the first-mentioned House, and either with or without any amendments subsequently agreed to by both Houses, to the electors in each State qualified to vote for the election of the House of Representatives.

When a proposed law is submitted to the electors the vote shall be taken in such manner as the Parliament prescribes. But until the qualification of electors of members of the House of Representatives becomes uniform throughout the Commonwealth, only one-half the electors voting for and against the proposed law shall be counted in any State in which adult suffrage prevails.

And if in a majority of the States a majority of the electors voting approve the proposed law, and if a majority of all the electors voting also approve the proposed law, it shall be presented to the Governor-General for the Queen's assent.

No alteration diminishing the proportionate representation of any State in either House of the Parliament, or the minimum number of representatives of a State in the House of Representatives, or increasing, diminishing, or otherwise altering the limits of the State, or in any manner affecting the provisions of the Constitution in relation thereto, shall become law unless the majority of the electors voting in that State approve the proposed law.

* The Constitution has been altered by the following Acts :—The Constitution Alteration (Senate Elections) 1906 (No. 1 of 1907) ; and the Constitution Alteration (State Debts) 1909 (No. 3 of 1910).

† The Referendum (Constitution Alteration) Act 1906-1919, provides the necessary machinery for the submission to the electors of any proposed law for the alteration of the Constitution.

SCHEDULE.

OATH.

I, A.B., do swear that I will be faithful and bear true allegiance to Her Majesty Queen Victoria, Her heirs and successors according to law. So HELP ME GOD!

AFFIRMATION.

I, A.B., do solemnly and sincerely affirm and declare that I will be faithful and bear true allegiance to Her Majesty Queen Victoria, Her heirs and successors according to law.

(NOTE.—*The name of the King or Queen of the United Kingdom of Great Britain and Ireland for the time being is to be substituted from time to time.*)

2. The Royal Proclamation.—The preceding Act received the Royal assent on the 9th July, 1900. This made it lawful to declare that the people of Australia should be united in a Federal Commonwealth. This proclamation, made on the 17th September, 1900, constituted the Commonwealth as from the 1st January, 1901: it reads as follows:—

BY THE QUEEN.

A PROCLAMATION.

(Signed) VICTORIA R.

WHEREAS by an Act of Parliament passed in the Sixty-third and Sixty-fourth Years of Our Reign, intitled “An Act to constitute the Commonwealth of Australia,” it is enacted that it shall be lawful for the Queen, with the advice of the Privy Council, to declare by Proclamation, that, on and after a day therein appointed, not being later than One year after the passing of this Act, the people of *New South Wales, Victoria, South Australia, Queensland, and Tasmania*, and also, if Her Majesty is satisfied that the people of *Western Australia* have agreed thereto, of *Western Australia*, shall be united in a Federal Commonwealth under the name of the Commonwealth of Australia.

And whereas We are satisfied that the people of *Western Australia* have agreed thereto accordingly.

We therefore, by and with the advice of Our Privy Council, have thought fit to issue this Our Royal Proclamation, and We do hereby declare that on and after the First day of *January* One thousand nine hundred and one, the people of *New South Wales, Victoria, South Australia, Queensland, Tasmania, and Western Australia* shall be united in a Federal Commonwealth under the name of the Commonwealth of *Australia*.

Given at Our Court at *Balmoral* this Seventeenth day of *September*, in the Year of Our Lord One thousand nine hundred, and in the Sixty-fourth Year of Our Reign.

GOD SAVE THE QUEEN.

§ 9. Commonwealth Legislation.

1. The Commonwealth Parliaments.—The first Parliament of the Commonwealth was convened by proclamation dated 29th April, 1901, by His Excellency the late Marquis of Linlithgow, then Earl of Hopetoun, Governor-General. It was opened on the 9th May following by H.R.H. the Duke of Cornwall and York, who had been sent to Australia for that purpose by His Majesty the King; the Rt. Hon. Sir Edmund Barton, P.C., G.C.M.G., K.C., being Prime Minister.

The following table gives the number and duration of Parliaments since Federation:—

COMMONWEALTH PARLIAMENTS, 1901 TO 1921.

		Date of Opening.	Date of Dissolution.
First Parliament	.. ..	29th April, 1901	23rd November, 1903
Second	.. ..	2nd March, 1904	12th October, 1906
Third	.. ..	20th February, 1907	19th February, 1910
Fourth	.. ..	1st July, 1910	23rd April, 1913
Fifth	.. ..	9th July, 1913	30th July, 1914*
Sixth	.. ..	8th October, 1914	26th March, 1917
Seventh	.. ..	14th June, 1917	3rd November, 1919
Eighth	.. ..	26th February, 1920	—

* On this occasion, the Governor-General, acting on the advice of the Ministry, and under section 57 of the Constitution, granted a dissolution of both the Senate and the House of Representatives, this being the first occasion since Federation on which a dissolution of both Houses had occurred.

The Debates of the first seven Parliaments will be found in Volumes I. to XC. of the Parliamentary Debates.

2. **The Several Administrations.**—The following tabular statements shew the names of the several Governors-General, and the constitution of the Ministries which have directed the administration of the affairs of the Commonwealth since its creation :—

(a) **GOVERNORS-GENERAL.**

Rt. Hon. EARL OF HOPETOUN (afterwards MARQUIS OF LINLITHGOW), P.C., K.T., G.C.M.G., G.C.V.O.	Sworn 1st January, 1901; recalled 9th May, 1902.
Rt. Hon. HALLAM BARON TENNYSON, G.C.M.G. (Act. Governor-General).	Sworn 17th July, 1902.
Rt. Hon. HALLAM BARON TENNYSON, G.C.M.G. (Governor-General).	Sworn 9th January, 1903; recalled 21st January, 1904.
Rt. Hon. HENRY STAFFORD BARON NORTHCOTE, P.C., G.C.M.G., G.C.I.E., C.B.	Sworn 21st January, 1904; recalled 8th September, 1908.
Rt. Hon. WILLIAM HUMBLE EARL OF DUDLEY, P.C., G.C.M.G., G.C.V.O., etc.	Sworn 9th September, 1908; recalled 31st July, 1911.
Rt. Hon. THOMAS BARON DENMAN, P.C., G.C.M.G., K.C.V.O.	Sworn 31st July, 1911; recalled 16th May, 1914.
Rt. Hon. SIR RONALD CRAUFORD MUNRO FERGUSON (afterwards VISCOUNT NOVAR OF RAITH), P.C., G.C.M.G.	Sworn 18th May, 1914; recalled 5th October, 1920.
Rt. Hon. HENRY WILLIAM BARON FORSTER OF LEPE, P.C., G.C.M.G.	Sworn 6th October, 1920.

(b) **BARTON ADMINISTRATION, 1st January, 1901, to 23rd September, 1903.**

DEPARTMENTS.	MINISTERS.
External Affairs	Rt. Hon. SIR EDMUND BARTON, P.C., G.C.M.G., K.C.
Attorney-General	Hon. ALFRED DEAKIN.
Home Affairs	{ Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (to 7/8/'03).
	{ Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (from 7/8/'03).*
Treasurer	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
Trade and Customs	{ Rt. Hon. CHARLES CAMERON KINGSTON, P.C., K.C. (resigned 24/7/'03).
	{ Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (from 7/8/'03).
Defence	{ Hon. SIR JAMES ROBERT DICKSON, K.C.M.G. (died 10/1/'01).
	{ Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (17/1/'01 to 7/8/'03)
	{ Hon. JAMES GEORGE DRAKE (from 7/8/'03).
Postmaster-General	{ Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (to 17/1/'01).*
	{ Hon. JAMES GEORGE DRAKE (5/2/'01 to 7/8/'03).
	{ Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G. (from 7/8/'03).
Vice-President Executive Council	Hon. RICHARD EDWARD O'CONNOR, K.C.
Without Portfolio	{ Hon. N. E. LEWIS (to 23/4/'01).†
	{ Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G. (26/4/'01 to 7/8/'03).

(c) **FIRST DEAKIN ADMINISTRATION, 23rd September, 1903, to 26th April, 1904.**

DEPARTMENTS.	MINISTERS.
External Affairs	Hon. ALFRED DEAKIN.
Trade and Customs	Hon. SIR WILLIAM JOHN LYNE, K.C.M.G.
Treasurer	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
Home Affairs	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.*
Attorney-General	Hon. JAMES GEORGE DRAKE.
Postmaster-General	Hon. SIR PHILIP OAKLEY FYSH, K.C.M.G.
Defence	Hon. AUSTIN CHAPMAN.
Vice-President Executive Council	Hon. THOMAS PLAYFORD.

(d) **WATSON ADMINISTRATION, 26th April to 17th August, 1904.**

DEPARTMENTS.	MINISTERS.
Treasurer	Hon. JOHN CHRISTIAN WATSON.
External Affairs	Hon. WILLIAM MORRIS HUGHES.‡
Attorney-General	Hon. HENRY BOURNES HIGGINS, K.C.
Home Affairs	Hon. EGERTON LEE BATCHELOR.
Trade and Customs	Hon. ANDREW FISHER.§
Defence	Hon. ANDERSON DAWSON.
Postmaster-General	Hon. HUGH MAHON.
Vice-President Executive Council	Hon. GREGOR MCGREGOR.

* Created Lord Forrest of Bunbury, 1918. † K.C.M.G., 1902. ‡ P.C., 1916. § P.C., 1911.

(e) REID-MCLEAN ADMINISTRATION, 17th August, 1904, to 4th July, 1905.

DEPARTMENTS.	MINISTERS.
External Affairs	Rt. Hon. GEORGE HOUSTON REID, P.C., K.C.*
Trade and Customs	Hon. ALLAN MCLEAN.
Attorney-General	Hon. SIR JOSIAH HENRY SYMON, K.C.M.G., K.C.
Treasurer	Rt. Hon. SIR GEORGE TURNER, P.C., K.C.M.G.
Home Affairs	Hon. DUGALD THOMSON.
Defence	Hon. JAMES WHITESIDE MCCAY.†
Postmaster-General	Hon. SYDNEY SMITH.
Vice-President-Executive Council	Hon. JAMES GEORGE DRAKE.

(f) SECOND DEAKIN ADMINISTRATION, 4th July, 1905, to 12th November, 1908.

DEPARTMENTS.	MINISTERS.
External Affairs	Hon. ALFRED DEAKIN.
Attorney-General	{ Hon. ISAAC ALFRED ISAACS, K.C. (to 12/10/'06). Hon. LITTLETON ERNEST GROOM (from 12/10/'06).
Trade and Customs	{ Hon. SIR WILLIAM JOHN LYNE, K.C.M.G. (to 30/7/'07). Hon. AUSTIN CHAPMAN (from 30/7/'07).
Treasurer	{ Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G. (to 30/7/'07).‡ Hon. SIR WILLIAM JOHN LYNE (from 30/7/'07).
Postmaster-General	{ Hon. AUSTIN CHAPMAN (to 30/7/'07). Hon. SAMUEL MAUGER (from 30/7/'07).
Defence	{ Hon. THOMAS PLAYFORD (to 24/1/'07). Hon. THOMAS THOMSON EWING (from 24/1/'07).§ Hon. LITTLETON ERNEST GROOM (to 12/10/'06).
Home Affairs	{ Hon. THOMAS THOMSON EWING (from 12/10/'06 to 24/1/'07).§ Hon. JOHN HENRY KEATING (from 24/1/'07). Hon. THOMAS THOMSON EWING (to 12/10/'08).§
Vice-President Executive Council	{ Hon. JOHN HENRY KEATING (from 12/10/'06 to 20/2/'07). Hon. ROBERT WALLACE BEST (from 20/2/'07).§ Hon. J. H. KEATING (from 5/7/'05 to 12/10/'06).
Honorary Ministers	{ Hon. S. MAUGER (from 12/10/'06 to 30/7/'07). Hon. J. HUME COOK (from 28/1/'08).

(g) FIRST FISHER ADMINISTRATION, 12th November, 1908, to 2nd June, 1909.

DEPARTMENTS.	MINISTERS.
Treasurer	Hon. ANDREW FISHER.||
Attorney-General	Hon. WILLIAM MORRIS HUGHES.¶
External Affairs	Hon. EGERTON LEE BATCHELOR.
Home Affairs	Hon. HUGH MAHON.
Postmaster-General	Hon. JOSIAH THOMAS.
Defence	Hon. GEORGE FOSTER PEARCE.
Trade and Customs	Hon. FRANK GWYNNE TUDOR.
Vice-President Executive Council	Hon. GREGOR MCGREGOR.
Honorary Minister	Hon. JAMES HUTCHISON.

(h) THIRD DEAKIN ADMINISTRATION, 2nd June, 1909, to 29th April, 1910.

DEPARTMENTS.	MINISTERS.
Prime Minister (without Portfolio)	Hon. ALFRED DEAKIN.
Defence	Hon. JOSEPH COOK.**
Treasurer	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.†
Trade and Customs	Hon. SIR ROBERT WALLACE BEST, K.C.M.G.
External Affairs	Hon. LITTLETON ERNEST GROOM.
Attorney-General	Hon. PATRICK McMAHON GLENN.
Postmaster-General	Hon. SIR JOHN QUICK.
Home Affairs	Hon. GEORGE WARBURTON FULLER.
Vice-President Executive Council	Hon. EDWARD DAVIS MILLEN.
Honorary Minister	Colonel The Hon. JUSTIN FOX GREENLAW FOXTON, C.M.G.

* K.C.M.G., 1909; G.C.M.G., 1911; G.C.B., 1916. † K.C.M.G., 1918. ‡ Created Lord Forrest of Bunbury, 1918. § K.C.M.G., 1908. || P.C., 1911. ¶ P.C., 1916. ** P.C., 1914; G.C.M.G., 1918.

(i) SECOND FISHER ADMINISTRATION, 23th April, 1910, to 24th June, 1913.

DEPARTMENTS.	MINISTERS.
Treasurer	Hon. ANDREW FISHER.*
Attorney-General	Hon. WILLIAM MORRIS HUGHES.†
External Affairs	{ Hon. EGERTON LEE BATCHELOR (died Oct., 1911). Hon. JOSIAH THOMAS (from 14/10/11).
Postmaster-General	{ Hon. JOSIAH THOMAS (to 14/10/11). Hon. CHARLES EDWARD FRAZER (from 14/10/11).
Defence	Hon. GEORGE FOSTER PEARCE.**
Trade and Customs	Hon. FRANK GWYNNE TUDOR.
Home Affairs	Hon. KING O'MALLEY.
Vice-President Executive Council	Hon. GREGOR MCGREGOR.
Honorary Ministers	{ Hon. EDWARD FINDLEY. Hon. CHARLES EDWARD FRAZER (to 14/10/11). Hon. ERNEST ALFRED ROBERTS (from 23/10/11).

(j) COOK ADMINISTRATION, 24th June, 1913, to 17th September, 1914.

DEPARTMENTS.	MINISTERS.
Home Affairs	Hon. JOSEPH COOK.‡
Treasurer	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.§
Attorney-General	Hon. WILLIAM HILL IRVINE, K.C.¶
Defence	Hon. EDWARD DAVIS MILLEN.
External Affairs	Hon. PATRICK McMAHON GLYNN, K.C.
Trade and Customs	Hon. LITTLETON ERNEST GROOM.
Postmaster-General	Hon. AGAR WYNNE.
Vice-President Executive Council	Hon. JAMES HIERS MCCOLL.
Honorary Ministers	{ Hon. JOHN SINGLETON CLEMONS. Hon. WILLIAM HENRY KELLY.

(k) THIRD FISHER ADMINISTRATION, 17th September, 1914, to 27th October, 1915

DEPARTMENTS.	MINISTERS.
Treasurer	Rt. Hon. ANDREW FISHER, P.C.
Attorney-General	Hon. WILLIAM MORRIS HUGHES.†
Defence	Hon. GEORGE FOSTER PEARCE.**
Trade and Customs	Hon. FRANK GWYNNE TUDOR.
External Affairs	{ Hon. JOHN ANDREW ARTHUR (died December, 1914). Hon. HUGH MAHON (from 14/12/14).
Home Affairs	Hon. WILLIAM OLIVER ARCHIBALD.
Postmaster-General	Hon. WILLIAM GUTHRIE SPENCE.
Minister for the Navy	Hon. JENS AUGUST JENSEN (from 12/7/15).
Vice-President Executive Council	Hon. ALBERT GARDINER.
Assistant Ministers	{ Hon. HUGH MAHON (to 14/12/14). Hon. JENS AUGUST JENSEN (to 12/7/15). Hon. EDWARD JOHN RUSSELL.

(l) FIRST HUGHES ADMINISTRATION from 27th October, 1915, to 14th Nov., 1916.

DEPARTMENTS.	MINISTERS.
Prime Minister and Attorney-General	Hon. WILLIAM MORRIS HUGHES.†
Defence	Hon. GEORGE FOSTER PEARCE.**
Trade and Customs	{ Hon. FRANK GWYNNE TUDOR (to 14/9/16). Hon. WILLIAM MORRIS HUGHES (from 29/9/16).
Treasurer	Hon. WILLIAM GUY HIGGS.¶
Minister for the Navy	Hon. JENS AUGUST JENSEN.
Home Affairs	Hon. KING O'MALLEY.
External Affairs	Hon. HUGH MAHON.
Postmaster-General	Hon. WILLIAM WEBSTER.
Vice-President Executive Council	Hon. ALBERT GARDINER.¶
Assistant Minister	Hon. EDWARD JOHN RUSSELL.¶

* P.C., 1911. † P.C., 1916. ‡ P.C., 1914; G.C.M.G., 1918.
 Bunbury, 1918. ¶ K.C.M.G., 1914. ¶ Resigned 27/10/16.

§ Created Lord Forrest of
 ** P.C., 1921.

(m) SECOND HUGHES ADMINISTRATION from 14th Nov., 1916, to 17th Feb., 1917.

DEPARTMENTS.	MINISTERS.
Prime Minister and Attorney-General	Rt. Hon. WILLIAM MORRIS HUGHES, P.C.
Minister for Defence	Hon. GEORGE FOSTER PEARCE.†
Minister for the Navy	Hon. JENS AUGUST JENSEN.
Postmaster-General	Hon. WILLIAM WEBSTER.
Treasurer	Hon. ALEXANDER POYNTON.
Minister for Trade and Customs ..	Hon. WILLIAM OLIVER ARCHIBALD.
Minister for Home Affairs	Hon. FREDERICK WILLIAM BAMFORD.
Minister for Works	Hon. PATRICK JOSEPH LYNCH.
Vice-President Executive Council ..	Hon. WILLIAM GUTHRIE SPENCE.
Assistant Ministers	{ Hon. EDWARD JOHN RUSSELL. Hon. WILLIAM HENRY LAIRD SMITH.

(n) AUSTRALIAN NATIONAL WAR GOVERNMENT from 17th February, 1917, to 8th January, 1918.

DEPARTMENTS.	MINISTERS.
Prime Minister and Attorney-General	Rt. Hon. WILLIAM MORRIS HUGHES, P.C.
Minister for the Navy	Rt. Hon. JOSEPH COOK, P.C.*
Treasurer	Rt. Hon. SIR JOHN FORREST, P.C., G.C.M.G.†
Minister for Defence	Hon. GEORGE FOSTER PEARCE.‡
Vice-President Executive Council ..	{ Hon. EDWARD DAVIS MILLEN. Hon. LITTLETON ERNEST GROOM (from 16/11/17). Hon. EDWARD DAVIS MILLEN (from 28/9/17).
Minister for Repatriation	Hon. WILLIAM ALEXANDER WATT.†
Minister for Works and Railways ..	Hon. PATRICK McMAHON GLYNN, K.C.
Minister for Trade and Customs ..	Hon. JENS AUGUST JENSEN.
Postmaster-General	Hon. WILLIAM WEBSTER.
Honorary Ministers	{ Hon. LITTLETON ERNEST GROOM. Hon. EDWARD JOHN RUSSELL.

(o) AUSTRALIAN NATIONAL WAR GOVERNMENT from 10th January, 1918.

DEPARTMENTS.	MINISTERS.
Prime Minister and Minister for External Affairs	Rt. Hon. WILLIAM MORRIS HUGHES, P.C., K.C.
Attorney-General	{ Rt. Hon. WILLIAM MORRIS HUGHES, P.C., K.C. (to 21/12/21). Hon. LITTLETON ERNEST GROOM (from 21/12/21). Rt. Hon. JOSEPH COOK, P.C.* (to 28/7/20).
Minister for the Navy	{ Hon. WILLIAM HENRY LAIRD SMITH (from 28/7/20 to 21/12/21). Rt. Hon. LORD FORREST, P.C., G.C.M.G. (to 27/3/18; died 4th September, 1918). Hon. WILLIAM ALEXANDER WATT (from 27/3/18; resigned 15/6/20).
Treasurer	{ Rt. Hon. JOSEPH COOK, P.C.* (from 28/7/20 to 21/12/21). Hon. STANLEY MELBOURNE BRUCE, M.C. (from 21/12/21). Hon. GEORGE FOSTER PEARCE.‡ (to 21/12/21).
Minister for Defence	{ Hon. WALTER MASSY GREENE (from 21/12/21). Hon. EDWARD DAVIS MILLEN.
Minister for Repatriation	{ Hon. WILLIAM ALEXANDER WATT.† Hon. LITTLETON ERNEST GROOM (from 27/3/18 to 21/12/21). Hon. RICHARD WITTY FOSTER (from 21/12/21).
Minister for Works and Railways ..	{ Hon. PATRICK McMAHON GLYNN, K.C. (to 3/2/20). Hon. ALEXANDER POYNTON (from 4/2/20 to 21/12/21). Rt. Hon. GEORGE FOSTER PEARCE, P.C. (from 21/12/21).
Minister for Trade and Customs ..	{ Hon. JENS AUGUST JENSEN (to 13/12/18). Hon. WILLIAM ALEXANDER WATT.† (from 13/12/18). Hon. WALTER MASSY GREENE (from 17/1/19 to 21/12/21). Hon. ARTHUR STANISLAUS RODGERS (from 21/12/21).
Postmaster-General	{ Hon. WILLIAM WEBSTER (to 3/2/20). Hon. GEORGE HENRY WISE (from 4/2/20 to 21/12/21). Hon. ALEXANDER POYNTON (from 21/12/21).
Minister for Health	{ Hon. WALTER MASSY GREENE (from 10/3/21). Hon. LITTLETON ERNEST GROOM (to 27/3/18).
Vice-President Executive Council ..	{ Hon. EDWARD JOHN RUSSELL (from 27/3/18 to 21/12/21). Hon. JOHN EARLE (from 21/12/21). Hon. EDWARD JOHN RUSSELL (to 27/3/18). Hon. ALEXANDER POYNTON (from 26/3/18 to 4/2/18). Hon. GEORGE HENRY WISE (from 26/3/18 to 4/2/18). Hon. WALTER MASSY GREENE (from 26/3/18 to 17/1/19).
Honorary Ministers	{ Hon. RICHARD BRAUMONT ORCHARD (from 26/3/18 to 31/1/19). Hon. SIR GRANVILLE DE RYRIE, K.C.M.G., C.B., V.D. (from 4/2/20). Hon. WILLIAM HENRY LAIRD SMITH (from 4/2/20 to 23/7/20). Hon. ARTHUR STANISLAUS RODGERS (from 23/7/20 to 21/12/21). Hon. HECTOR LAMOND (from 21/12/21).

* G.C.M.G., 1918. † Created Lord Forrest of Bunbury, 1918. ‡ P.C., 1920. ‡ P.C., 1921.

A further list of the Ministers of State for the Commonwealth, arranged according to the respective offices occupied, is given in the section of this book dealing with the subject of General Government (see Section XXV.).

3. **The Course of Legislation.**—The actual legislation by the Commonwealth Parliament up to the end of the 1921 session is indicated in alphabetical order in "Vol. XIX. of the Acts of the Parliament of the Commonwealth of Australia, passed in the session of 1921, with Tables and Indexes." A "Chronological Table of Acts passed from 1901 to 1921, shewing how they are affected by subsequent legislation or lapse of time" is also given, and further "A Table of Commonwealth Legislation," for the same period, "in relation to the several provisions of the Constitution," is furnished. Reference may be made to these for complete information. The nature of Commonwealth legislation, up to December, 1921, and its relation to the several provisions of the Constitution, are set forth in the following tabular statement:—

**ANALYTIC TABLE OF COMMONWEALTH LEGISLATION
FROM 1901 to DECEMBER, 1921, IN RELATION TO THE SEVERAL PROVISIONS
OF THE CONSTITUTION.†**

Section of Constitution.	Short Title of Commonwealth Act.*
	AMENDMENT OF THE CONSTITUTION.
	Constitution Alteration (Senate Elections) 1906.
	Constitution Alteration (State Debts) 1909.
	PARLIAMENTARY AND ELECTORAL LAW.
8—30	PARLIAMENTARY FRANCHISE— <i>Commonwealth Franchise Act 1902.*</i> <i>Commonwealth Electoral (War-time) Act 1917–1919.*</i> <i>Commonwealth Electoral Act 1918–1921.</i>
9—34	ELECTIONS— <i>Commonwealth Electoral Act 1902–1911.†</i> <i>Senate Elections Act 1903.</i> <i>Commonwealth Electoral (War-time) Act 1917–1919.*</i> <i>Commonwealth Electoral Act 1918–1921.</i>
24	DETERMINATION OF NUMBER OF MEMBERS OF HOUSE OF REPRESENTATIVES— <i>Representation Act 1905.</i> <i>Representation Act 1916.</i>
47	DISPUTED ELECTIONS AND QUALIFICATIONS— <i>Commonwealth Electoral Act 1902–1911, Part XVI.*†</i> <i>Disputed Elections and Qualifications Act 1907.*</i> <i>Commonwealth Electoral Act 1918–1921, ss. 183–201</i>
48	ALLOWANCES TO MEMBERS— <i>Parliamentary Allowances Act 1902.*</i> <i>Parliamentary Allowances Act 1907.*</i> <i>Parliamentary Allowances Act 1920.</i>
49	PRIVILEGES OF PARLIAMENT— <i>Parliamentary Papers Act 1908.</i>
	GENERAL LEGISLATION.
51—(i)	TRADE AND COMMERCE—EXTERNAL AND INTERSTATE— <i>Sea Carriage of Goods Act 1904 [Bills of Lading].</i> <i>Secret Commissions Act 1905.</i> <i>Commerce (Trade Descriptions) Act 1905 [Merchandise Marks].</i> <i>Australian Industries Preservation Act 1906–1910 [Trusts and Dumping].</i> <i>Spirits Act 1906–1918.</i> <i>Seamen's Compensation Act 1909.*</i> <i>Customs (Inter-State Accounts) Act 1910.</i>

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

† This table has been prepared by Sir Robert Garran, Solicitor-General to the Commonwealth.

‡ With the exception of s. 210 of the *Commonwealth Electoral Act 1902*, and s. 18 of the *Commonwealth Electoral Act 1905*, the *Commonwealth Electoral Act 1902–1911* has been repealed by the *Commonwealth Electoral Act 1918*. See *Gazette*, 25th November, 1918, p. 2257, *Gazette*, 21st March, 1919, p. 401, and *Gazette*, 14th December, 1920, p. 2277.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
	GENERAL LEGISLATION— <i>continued.</i>
51 (i)	TRADE AND COMMERCE—EXTERNAL AND INTERSTATE— <i>continued.</i> Northern Territory Acceptance Act 1910–1919 (s. 13). Seamen's Compensation Act 1911. Navigation Act 1912–1920. Norfolk Island Act 1913 (s. 15). Trading with the Enemy Act 1914–1921. <i>Meat Export Trade Commission Act 1914.*</i> Enemy Contracts Annulment Act 1915. Freight Arrangements Act 1915–1917. River Murray Waters Act 1915–1920. Sugar Purchase Act 1915–1917. <i>Butter Agreement Act 1920.*</i> War Precautions Act Repeal Act 1920–21.
(ii)	TAXATION— <i>Machinery Acts—</i> Customs Act 1901–1920. Beer Excise Act 1901–1918. Distillation Act 1901–1918. Excise Act 1901–1918. Spirits Act 1906–1918. Excise Procedure Act 1907. Land Tax Assessment Act 1910–1916. Estate Duty Assessment Act 1914–1916. Income Tax Assessment Act 1915–1921. Entertainments Tax Assessment Act 1916. War-time Profits Tax Assessment Act 1917–1918. <i>Taxing Acts—</i> Customs Tariff 1902. <i>Customs Tariff 1906 [Agricultural Machinery].*</i> Customs Tariff (South African Preference) 1906; affected by <i>Customs Tariff 1908 (s. 9)*</i> and by Customs Tariff 1921 (s. 15). <i>Customs Tariff 1908</i> ; amended by <i>Customs Tariff Amendment 1908,*</i> <i>and Customs Tariff 1910,*</i> and <i>Customs Tariff 1911.*</i> Excise Tariff 1902; amended by Sugar Rebate Abolition Act 1903, <i>Excise Tariff 1905,* Excise Tariff (Amendment) 1906,* Excise</i> <i>Tariff 1908,*</i> and <i>Excise (Sugar) 1910.*</i> Excise Tariff 1906 [<i>Agricultural Machinery</i>]; 1906 [<i>Spirits</i>]. <i>Excise Tariff 1908</i> ; amended by <i>Excise Tariff (Starch) 1908.*</i> Bank Notes Tax Act 1910. Land Tax Act 1910–1918. Sugar Excise Repeal Act 1912. <i>Excise Tariff 1913.*</i> Estate Duty Act 1914. Income Tax Acts 1915. Income Tax Act 1916. Entertainments Tax Act 1916–1919. Customs Tariff Validation Act 1917; affected by Customs Tariff 1921 (s. 12 (2)). <i>Excise Tariff Validation Act 1917.*</i> War-time Profits Tax Act 1917. Income Tax Act 1917. Income Tax Act 1918. Income Tax Act 1919. Land Tax Act 1919. Customs Tariff Validation Act 1919; affected by Customs Tariff 1921 (s. 12 (2)). <i>Excise Tariff Validation Act 1919.*</i>

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
	GENERAL LEGISLATION— <i>continued.</i>
51 (ii)	TAXATION— <i>continued.</i> Income Tax Act 1920. Income Tax Act 1921. Land Tax Act 1920. Customs Tariff 1921. Excise Tariff 1921. Customs Tariff (New Zealand Preference) 1921. Customs Tariff (Industries Preservation) Act 1921.
(iii)	BOUNTIES ON PRODUCTION OR EXPORT— <i>Sugar Bounty Acts 1903,* 1905,* 1910,* 1912.*</i> Bounties Act 1907–1912. <i>Manufactures Encouragement Act 1908–1914.*</i> <i>Shale Oil Bounties Act 1910.*</i> Sugar Bounty Abolition Act 1912. Wood Pulp and Rock Phosphate Bounties Act 1912–1917. <i>Sugar Bounty Act 1913.*</i> <i>Iron Bounty Act 1914–1915.*</i> <i>Shale Oil Bounty Act 1917–1921.</i> <i>Apple Bounty Act 1918.*</i> Iron and Steel Bounty Act 1918–1921.
(iv)	BORROWING MONEY ON THE PUBLIC CREDIT OF THE COMMONWEALTH— Commonwealth Inscribed Stock Act 1911–1918. Loan Act 1911–1914. 1912–1914, 1913–1914, 1914, 1915, 1918, 1919, 1920, 1921, (No. 2) 1921. Commonwealth Bank Act 1911–1920. <i>Naval Loan Act 1909.*</i> Naval Loan Repeal Act 1910. Treasury Bills Act 1914–1915. War Loan (United Kingdom) Act 1914–1917. War Loan Act (No. 1) 1915. War Loan (United Kingdom) Act 1915–1917. War Loan Act (No. 3) 1915. Sugar Purchase Act 1915–1920. Freight Arrangements Act 1915–1917. States Loan Act 1916. War Loan Act (No. 1) 1916. War Loan Act (United Kingdom, No. 2) 1916. States Loan Act 1917. War Loan Act 1917. Loans Sinking Fund Act 1918. War Loan Act 1918. War Loan Securities Repurchase Act 1918. Tasmanian Loan Redemption Act 1919. Loans Securities Act 1919. War Gratuity Acts 1920. War Loan Act 1920. War Precautions Act Repeal Act 1920–1921. Funding Arrangements Act 1921. Loans Redemption and Conversion Act 1921. Repatriation Loan Act 1921.
(v)	POSTAL, TELEGRAPHIC, AND TELEPHONIC SERVICES— Post and Telegraph Act 1901–1916. Post and Telegraph Rates Act 1902–1920. Wireless Telegraphy Act 1905–1919. Tasmanian Cable Rates Act 1906. Telegraph Act 1909. Postal Rates Act 1910. Purchase Telephone Lines Acquisition Act 1911. Pacific Cable Act 1911.

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
GENERAL LEGISLATION—<i>continued.</i>	
51 (vi)	NAVAL AND MILITARY DEFENCE—
	<i>General—</i>
	Naval Agreement Act 1903–1912.
	<i>Naval Loan Act 1909.*</i>
	Naval Loan Repeal Act 1910.
	Defence Act 1903–1918.
	Telegraph Act 1909.
	Naval Defence Act 1910–1918.
	Defence Lands Purchase Act 1913.
	Control of Naval Waters Act 1918.
	Deceased Soldiers' Estates Act 1918–1919.
	<i>War Legislation—</i>
	<i>Patents, Trade Marks and Designs Act 1914–1915.*</i>
	Trading with the Enemy Act 1914–1921.
	<i>War Precautions Act 1914–1918.*</i>
	<i>War Census Act 1915–1916.*</i>
	Enemy Contracts Annulment Act 1915.
	<i>War Pensions Act 1914–1916.*</i>
	<i>Australian Soldiers' Repatriation Fund Act 1916.*</i>
	<i>Military Service Referendum Act 1916.*</i>
	<i>Daylight Saving Act 1916.*</i>
	<i>Patents Act (Partial Suspension) Act 1916.*</i>
	<i>Unlawful Associations Act 1916–1917.*</i>
	Wheat Storage Act 1917.
	Daylight Saving Repeal Act 1917.
	<i>Australian Soldiers' Repatriation Act 1917–1918.*</i>
	Defence (Civil Employment) Act 1918.
	War Service Homes Act 1918–1920.
	War Service Homes Commissioner Validating Act 1921.
	<i>Commercial Activities Act 1919.*</i>
	Moratorium Act 1919.
	Treaty of Peace (Germany) Act 1919–1920.
	Termination of the Present War (Definition) Act 1919.
	<i>Land, Mining, Shares and Shipping Act 1919.*</i>
	Legal Proceedings Control Act 1919.
	War Gratuity Acts 1920.
	Australian Imperial Force Canteens Fund Act 1920.
	Australian Soldiers' Repatriation Act 1920–1921.
	Treaties of Peace (Austria and Bulgaria) Act 1920.
	Treaty of Peace (Hungary) Act 1921.
	War Precautions Act Repeal Act 1920–1921.
	War Precautions (Coal) Act 1921.
(vii)	LIGHTHOUSES, LIGHTSHIPS, BEACONS AND BUOYS—
	Lighthouses Act 1911–1919.
(viii)	ASTRONOMICAL AND METEOROLOGICAL OBSERVATIONS—
	Meteorology Act 1906.
(ix)	QUARANTINE—
	Quarantine Act 1908–1920.
(xi)	CENSUS AND STATISTICS—
	Census and Statistics Act 1905–1920.
	<i>War Census Act 1915–1916.*</i>
(xii)	CURRENCY, COINAGE, AND LEGAL TENDER—
	Coinage Act 1909.
	<i>Australian Notes Act 1910–1914.*</i>
	Commonwealth Bank Act 1911–1920.
(xiii)	BANKING, OTHER THAN STATE BANKING, ETC.—
	Commonwealth Bank Act 1911–1920.
(xiv)	INSURANCE—
	Life Assurance Companies Act 1905.
	Marine Insurance Act 1909.
(xvi)	BILLS OF EXCHANGE AND PROMISSORY NOTES—
	Bills of Exchange Act 1909–1912.

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
	GENERAL LEGISLATION— <i>continued.</i>
51 (xviii)	COPYRIGHT, PATENTS, DESIGNS, AND TRADE MARKS— Customs Act 1901–1916 (s. 52 (a), 57). Patents Act 1903–1909. Trade Marks Act 1905–1919. <i>Copyright Act 1905.*</i> Designs Act 1906–1912. Patents, Trade Marks and Designs Act 1910. Copyright Act 1912. <i>Patents, Trade Marks and Designs Act 1914–1915.*</i> <i>Patents Act (Partial Suspension) Act 1916.</i>
(xix)	NATURALIZATION AND ALIENS— <i>Naturalization Act 1903–1917.*</i> Immigration Act 1901–1920. Nationality Act 1920. Aliens Registration Act 1920. <i>War Precautions Act 1914–1918.*</i> War Precautions Act Repeal Act 1920–1921.
(xxii)	MARRIAGE AND DIVORCE— <i>Matrimonial Causes (Expeditionary Forces) Act 1919.*</i>
(xxiii)	INVALID AND OLD-AGE PENSIONS— Invalid and Old-age Pensions Act 1908–1920.
(xxiv)	SERVICE AND EXECUTION THROUGHOUT COMMONWEALTH OF PROCESS AND JUDGMENTS OF STATE COURTS— <i>Service and Execution of Process Act 1905.*</i> Service and Execution of Process Act 1901–1918.
(xxv)	RECOGNITION OF STATE LAWS, RECORDS, ETC.— State Laws and Records Recognition Act 1901.
(xxvi)	PEOPLE OF ANY RACE, OTHER THAN ABORIGINAL—SPECIAL LAWS— Pacific Island Labourers Act 1901–1906. <i>Commonwealth Franchise Act 1902* (s. 4).</i> <i>Naturalization Act 1903–1917 (s. 5).*</i> Commonwealth Electoral Act 1918–1921 (s. 39).
(xxvii)	IMMIGRATION AND EMIGRATION— Immigration Act 1901–1920. Pacific Island Labourers Act 1901–1906. Contract Immigrants Act 1905. Emigration Act 1910. Passports Act 1920. War Precautions Act Repeal Act 1920–1921.
(xxviii)	INFLUX OF CRIMINALS— Immigration Act 1901–1920 (s. 3 (ga), (gb)).
(xxix)	EXTERNAL AFFAIRS— Extradition Act 1903. High Commissioner Act 1909.
(xxx)	RELATIONS WITH PACIFIC ISLANDS— Pacific Island Labourers Act 1901–1906. Nauru Island Agreement Act 1919. New Guinea Act 1920.
(xxxi)	ACQUISITION OF PROPERTY FOR PUBLIC PURPOSES— <i>Property for Public Purposes Acquisition Act 1901.*</i> <i>Seat of Government Act 1904.*</i> Lands Acquisition Act 1906–1916. Lands Acquisition Act 1912. Seat of Government Act 1908. Seat of Government Acceptance Act 1909. Seat of Government (Administration) Act 1910 (s. 10). Northern Territory (Administration) Act 1910. Defence Lands Purchase Act 1913. Purchase Telephone Lines Acquisition Act 1911. Kalgoorlie to Port Augusta Railway Lands Act 1918–1920. Lands Acquisition (Defence) Act 1918. War Service Homes Act 1918–1920 (s. 16).

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
	GENERAL LEGISLATION— <i>continued.</i>
51 (xxxii)	CONTROL OF RAILWAYS FOR DEFENCE PURPOSES— Defence Act 1903-1918 (ss. 64-66, 80, 124). <i>War Precautions Act 1914-1918 (s. 4 (1) (c)).*</i>
(xxxiv)	RAILWAY CONSTRUCTION AND EXTENSION IN ANY STATE WITH THE CONSENT OF THAT STATE— Kalgoorlie to Port Augusta Railway Act 1911-1912. Commonwealth Railways Act 1917.
(xxxv)	CONCILIATION AND ARBITRATION FOR THE PREVENTION AND SETTLEMENT OF INDUSTRIAL DISPUTES EXTENDING BEYOND THE LIMITS OF ANY ONE STATE— Commonwealth Conciliation and Arbitration Act 1904-1921. Industrial Peace Acts 1920. Arbitration (Public Service) Act 1920.
(xxxix)	MATTERS INCIDENTAL TO THE EXECUTION OF POWERS— Acts Interpretation Act 1901-1918. <i>Punishment of Offences Act 1901.*</i> Acts Interpretation Act 1904-1916. Amendments Incorporation Act 1905-1918. Rules Publication Act 1903-1916. Commonwealth Public Service Act 1902-1918. Jury Exemption Act 1905. Royal Commissions Act 1902-1912. Evidence Act 1905. Commonwealth Salaries Act 1907. Excise Procedure Act 1907. Statutory Declarations Act 1911. Arbitration (Public Service) Act 1911. Commonwealth Inscribed Stock Act 1911-1918. Maternity Allowance Act 1912. Commonwealth Workmen's Compensation Act 1912. Committee of Public Accounts Act 1913-1920. Commonwealth Public Works Committee Act 1913-1914. <i>Meat Export Trade Commission Act 1914.*</i> Crimes Act 1914-1915. Commonwealth Public Service (Acting Commissioner) Act 1916. Solicitor-General Act 1916. Commonwealth Public Works Committee Act 1917. Committee of Public Accounts Act 1917. <i>Australian Soldiers' Repatriation Act 1917-1918.*</i> <i>Sugar Industry Commission Act 1919.*</i> Arbitration (Public Service) Act 1920. Institute of Science and Industry Act 1920. Westralian Farmers' Agreement Act 1920. Air Navigation Act 1920. War Precautions Act Repeal Act 1920-1921. Returned Soldiers' Woollen Company Loan Act 1921. War Precautions (Coal) Act 1921. Westralian Farmers' Agreement Act 1921.
	EXECUTIVE GOVERNMENT.
55	NUMBER OF MINISTERS— <i>Ministers of State Act 1915.*</i> Ministers of State Act 1917.
67	APPOINTMENT AND REMOVAL OF OFFICERS— Commonwealth Public Service Act 1902-1918. Papua Act 1905-1920 (s. 19). Defence Act 1903-1918 (s. 63). High Commissioner Act 1909 (ss. 8, 9). Northern Territory Acceptance Act 1910-1919 (ss. 11, 12). Norfolk Island Act 1913 (ss. 7, 9). Commonwealth Public Service (Acting Commissioner) Act 1916.

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
EXECUTIVE GOVERNMENT—<i>continued.</i>	
67	APPOINTMENT AND REMOVAL OF OFFICERS—<i>continued.</i> Solicitor-General Act 1916. Commonwealth Railways Act 1917 (ss. 5-15, 46-54). Defence (Civil Employment) Act 1918. War Service Homes Act 1918-1920, ss. 5-15. War Service Homes Commissioner Validating Act 1921. Institute of Science and Industry Act 1920 (ss. 7, 14). New Guinea Act 1920 (ss. 6-12). Tariff Board Act 1921 (ss. 5-9). Australian Soldiers' Repatriation Act 1920-1921 (ss. 7-21).
THE JUDICATURE.	
71-80	CONSTITUTION AND PROCEDURE OF THE HIGH COURT— Judiciary Act 1903-1920. High Court Procedure Act 1903-1915.
73	APPELLATE JURISDICTION OF THE HIGH COURT— Judiciary Act 1903-1920. Papua Act 1905-1920 (s. 43). Inter-State Commission Act 1912 (s. 42). Land Tax Assessment Act 1910-1916 (s. 46). Norfolk Island Act 1913 (s. 11). Estate Duty Assessment Act 1914-1916 (s. 28). Income Tax Assessment Act 1915-1918 (s. 37). War-time Profits Tax Assessment Act 1917-1918 (s. 29).
76	ORIGINAL JURISDICTION OF HIGH COURT—
(i)	(1) <i>In matters arising under the Constitution or involving its interpretation—</i> Judiciary Act 1903-1920 (ss. 23, 30).
(ii)	(2) <i>In matters arising under Laws made by the Parliament—</i> Customs Act 1901-1920 (ss. 221, 227, 245). Excise Act 1901-1918 (ss. 109, 115, 134). Post and Telegraph Act 1901-1916 (ss. 29, 43). <i>Property for Public Purposes Acquisition Act 1901* (ss. 12-17, 25, 52, 55 (b), 58).</i> Commonwealth Electoral Act 1902-1911† (ss. 193, 206AA). Judiciary Act 1903-1920. Defence Act 1903-1918 (s. 91). Patents Act 1903-1909 (ss. 47, 58, 67, 75-77, 84-87A, 111). Commonwealth Conciliation and Arbitration Act 1904-1921 (s. 31). Trade Marks Act 1905-1919 (ss. 34, 35, 44, 45, 70-72, 95). <i>Copyright Act 1905* (s. 73 (2)).</i> <i>Copyright Act 1912 (s. 37 (2)).</i> Australian Industries Preservation Act 1906-1910 (ss. 10, 11, 12, 21, 22, 26). Referendum (Constitution Alteration) Act 1906-1919 (ss. 27, 31). Lands Acquisition Act 1906-1916 (ss. 10, 11, 24, 36-39, 45, 46, 50, 54, 56, 59). <i>Disputed Elections and Qualifications Act 1907* (ss. 2, 6).</i> Land Tax Assessment Act 1910-1916 (s. 44). Estate Duty Assessment Act 1914-1916 (ss. 39-41). Income Tax Assessment Act 1914-1916 (s. 37). War-time Profits Tax Assessment Act 1917-1918 (s. 28). Navigation Act 1912-1920 (ss. 383, 385). Trading with the Enemy Act 1914-1921 (ss. 9c, 9p). Commonwealth Electoral Act 1918-1921 (ss. 183, 202). Industrial Peace Acts 1920.
(iii)	(3) <i>In matters of Admiralty and Maritime Jurisdiction—</i> Judiciary Act 1903-1920 (ss. 30, 30A).

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

† See footnote ‡ at p. 31 *supra*.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
THE JUDICATURE— <i>continued.</i>	
77 (ii)	EXCLUDING JURISDICTION OF STATE COURTS— Judiciary Act 1903–1920 (ss. 38, 38A, 39, 57, 59).
(iii)	INVESTING STATE COURTS WITH FEDERAL JURISDICTION— Customs Act 1901–1920 (ss. 221, 227, 245). Excise Act 1901–1918 (ss. 109, 115, 134). Post and Telegraph Act 1901–1916 (ss. 29, 43). <i>Punishment of Offences Act 1901.*</i> Commonwealth Electoral Act 1902–1911† (s. 193). <i>Claims against the Commonwealth Act 1902.*</i> Defence Act 1903–1918 (s. 91). Judiciary Act 1903–1920 (ss. 17, 39, 68). Patents Act 1903–1909 (ss. 30, 47, 58, 67, 75–77, 84–87A, 111). Commonwealth Conciliation and Arbitration Act 1904–1921 (ss. 44–46, 48). Trade Marks Act 1905–1919 (ss. 34, 35, 44, 45). <i>Copyright Act 1905* (ss. 60, 73).</i> Designs Act 1906–1912 (s. 25, 39). Copyright Act 1912 (ss. 14–17). Land Tax Assessment Act 1910–1916 (s. 44). Navigation Act 1912–1920 (ss. 91, 92, 318–20, 580–3, 385, 395). Estate Duty Assessment Act 1914–1916 (s. 24). Income Tax Assessment Act 1915–1921 (s. 37). War-time Profits Tax Assessment Act 1917–1918 (s. 28).
78	RIGHT TO PROCEED AGAINST COMMONWEALTH OR STATE— Judiciary Act 1903–1920 (ss. 56–67).
FINANCE.	
81	APPROPRIATION OF MONEYS— Appropriation and Supply Acts 1901–1914. Audit Act 1901–1920 (ss. 36–37, 62a). Funding Arrangements Act 1921. Loans Redemption and Conversion Act 1921.
83	PAYMENT OF MONEYS— Audit Act 1901–1920 (ss. 31–37, 62a).
93	CREDITING OF REVENUE AND DEBITING OF EXPENDITURE— Surplus Revenue Acts 1908, 1909, 1910.
94	DISTRIBUTION OF SURPLUS REVENUE— Surplus Revenue Acts 1908, 1909, 1910.
96	ASSISTANCE TO STATES— Tasmania Grant Act 1912. Tasmania Grant Act 1913.
97	AUDIT OF PUBLIC ACCOUNTS— Audit Act 1901–1920.
98	NAVIGATION AND SHIPPING— Sea-Carriage of Goods Act 1904. Navigation Act 1912–1920. River Murray Waters Act 1915–1920.
100	USE OF WATERS— River Murray Waters Act 1915–1920.
101–104	INTER-STATE COMMISSION— Inter-State Commission Act 1912.
THE STATES.	
118	RECOGNITION OF STATE LAWS, RECORDS, ETC.— State Laws and Records Recognition Act 1901.
119	PROTECTION OF STATES FROM INVASION AND VIOLENCE— Defence Act 1903–1918 (s. 51).

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

† See footnote † at p. 31 *supra*.

ANALYTIC TABLE OF COMMONWEALTH LEGISLATION, ETC.—*continued.*

Section of Constitution.	Short Title of Commonwealth Act.*
	TERRITORIES.
122	GOVERNMENT OF TERRITORIES— Papua Act 1905. Wireless Telegraphy Act 1905-1919. Seat of Government Acceptance Act 1909. Patents Act 1903-1909 (s. 4a). Northern Territory Acceptance Act 1910-1919. Seat of Government (Administration) Act 1910. Northern Territory (Administration) Act 1910. Pine Creek to Katherine River Railway Survey Act 1912. Pine Creek to Katherine River Railway Act 1913. Norfolk Island Act 1913. Jervis Bay Territory Acceptance Act 1915. Nauru Island Agreement Act 1919. New Guinea Act 1920.
	MISCELLANEOUS.
125	SEAT OF GOVERNMENT— <i>Seat of Government Act 1904.*</i> Seat of Government Act 1908. Seat of Government Acceptance Act 1909. Seat of Government (Administration) Act 1910.
128	ALTERATION OF CONSTITUTION— Referendum (Constitution Alteration) Act 1906-1919. Constitution Alteration (Senate Elections) Act 1906. Constitution Alteration (State Debts) Act 1909. <i>Compulsory Voting Act 1915.*</i>

* Acts whose short titles are printed in italics with a * have been repealed or have expired.

SECTION III.

PHYSIOGRAPHY.

§ 1. General Description of Australia.

1. *Geographical Position.*—The Australian Commonwealth, which includes the island continent of Australia proper and the island of Tasmania, is situated in the Southern Hemisphere, and comprises in all an area of about 2,974,581 square miles, the mainland alone containing about 2,948,366 square miles. Bounded on the west and east by the Indian and Pacific Oceans respectively, it lies between longitudes 113° 9' E. and 153° 39' E., while its northern and southern limits are the parallels of latitude 10° 41' S. and 39° 8' S., or, including Tasmania, 43° 39' S. On its north are the Timor and Arafura Seas and Torres Strait, on its south the Southern Ocean and Bass Strait.*

Tropical and Temperate Regions. Of the total area of Australia the lesser portion lies within the tropics. Assuming, as is usual, that the latitude of the Tropic of Capricorn is 23° 30' S.,† the areas within the tropical and temperate zones are approximately as follows:—

AREAS OF TROPICAL AND TEMPERATE REGIONS

OF STATES AND TERRITORY WITHIN TROPICS.

Areas.	Queensland.	Western Australia.	Northern Territory.	Total.
	Sq. miles.	Sq. miles.	Sq. miles.	Sq. miles.
Within Tropical Zone	359,000	364,000	426,320	1,149,320
Within Temperate Zone	311,500	611,920	97,300	1,020,720
Ratio of Tropical part to whole State ..	0.535	0.373	0.814	0.530
Ratio of Temperate part to whole State	0.465	0.627	0.186	0.470

Thus the tropical part is roughly about one-half (0.530) of the three territories mentioned above, or about five-thirteenths of the whole Commonwealth (0.386). See hereafter *Meteorology*—page 48.

2. *Area of Australia compared with areas of other Countries.*—That the area of Australia is greater than that of the United States of America, that it is four-fifths of that of Canada, that it is nearly one-fourth of the area of the whole of the British Empire, that it is more than three-fourths of the whole area of Europe, that it is more than 25 times as large as any one of the following, viz., the United Kingdom, Hungary, Italy, the Transvaal, and Ecuador, are facts which are not always adequately realised. It is this great size, taken together with the fact of the limited population, that gives to the problems of Australian development their unique character, and its clear comprehension is essential in any attempt to understand those problems.

The relative magnitudes may be appreciated by a reference to the following table, which shows how large Australia is compared with the countries referred to, or *vice versa*. Thus, to take line one, we see that Europe is about $1\frac{3}{10}$ times (1.29711) as large as Australia, or that Australia is about three-quarters (more accurately 0.77) of the area of Europe.

* The extreme points are "Steep Point" on the west, "Cape Byron" on the east, "Cape York" on the north, "Wilson's Promontory" on the south, or, if Tasmania be included, "South East Cape." The limits, according to the 1903-4 edition of "A Statistical Account of Australia and New Zealand," p. 2, and, according to Volume XXV. of the *Encyclopædia Britannica*, tenth edition, p. 787, are respectively 113° 5' E., 153° 16' E., 10° 39' S., and 39° 11½' S., but these figures are obviously defective. A similar inaccuracy appears in the XI. edition of the *Encyclopædia*.

† Its correct value for 1920 is 23° 26' 58.89", and it decreases about 0.47" per annum.

AREA OF AUSTRALIA IN COMPARISON WITH THAT OF OTHER COUNTRIES.

Commonwealth of Australia 2,974,581 square miles.			
Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C'wealth.
Continents—	Sq. miles.		
Europe	3,858,361	0.77	1.29711
Asia	16,705,618	0.18	5.61612
Africa	12,154,812	0.24	4.08623
North and Central America and West Indies ..	8,548,784	0.35	2.87394
South America	7,366,287	0.40	2.47641
Australasia and Polynesia	3,422,017	0.87	1.15042
Total, exclusive of Arctic and Antarctic Conts.	52,055,879	0.06	17.50023
Europe—			
Russia	1,657,560	1.79	0.55724
France	212,659	13.99	0.07150
Spain	194,783	15.27	0.06548
Germany	183,468	16.21	0.06168
Sweden	173,035	17.19	0.05817
Lithuania	154,491	19.25	0.05194
Finland	149,586	19.89	0.05029
Poland	149,042	19.96	0.05011
Norway	124,934	23.80	0.04201
Rumania	122,282	24.33	0.04111
United Kingdom	121,633	24.46	0.04089
Italy	110,632	26.89	0.03719
Jugo-Slavia	95,628	31.11	0.03215
Czecho-Slovakia	54,264	54.82	0.01824
Greece	41,933	70.94	0.01410
Bulgaria	40,656	73.16	0.01367
Iceland	39,709	74.91	0.01225
Hungary	35,654	83.43	0.01199
Portugal	35,490	83.81	0.01193
Austria	30,756	93.68	0.01034
Latvia	25,000	118.93	0.00840
Estonia	23,160	128.44	0.00779
Denmark (Exclusive of Iceland)	17,144	173.51	0.00576
Switzerland	15,976	186.19	0.00537
Netherlands	12,582	236.42	0.00423
Belgium	11,744	253.29	0.00395
Albania	11,500	258.66	0.00387
Turkey	10,882	273.35	0.00366
Luxemburg	999	2977.56	0.00034
Danzig	709	4195.46	0.00024
Andorra	191	15573.72	0.00006
Malta	118	25208.31	0.00004
Liechtenstein	65	45762.78	0.00002
San Marino	38	78278.45	0.00001
Monaco	8	371822.63	..
Fiume	8	371822.63	..
Gibraltar	2	1487290.50	..
Total, Europe	3,858,361	0.77	1.29711
Asia—			
Russia	5,913,877	0.50	1.98814
China and Dependencies	3,913,560	0.76	1.31567
British India	1,093,074	2.72	0.36747
Independent Arabia	1,000,000	2.97	0.33618
Feudatory Indian States	709,555	4.19	0.23854
Far Eastern Republic	652,740	4.56	0.21944

AREA OF AUSTRALIA IN COMPARISON WITH OTHER COUNTRIES—*continued.*

Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C ^o wealth.
<i>ASIA—continued—</i>	Sq. miles.		
Persia	628,000	4.74	0.21112
Dutch East Indies	561,661	5.30	0.18882
Turkey	273,202	10.89	0.09185
Japan (and Dependencies)	261,276	11.38	0.08784
Afghanistan	245,000	12.14	0.08236
Siam	198,900	14.95	0.06687
Mesopotamia	143,250	20.76	0.04816
Syria	114,530	25.97	0.03850
Philippine Islands (incls. of Sulu Archipelago)	114,400	26.00	0.03846
Laos	96,500	30.82	0.03244
Omán	82,000	36.28	0.02757
Bokhara	79,000	37.65	0.02656
British Borneo and Sarawak	73,106	40.69	0.02458
Kurdistan and Turkish Armenia	71,990	41.32	0.02420
Cambodia	57,900	51.37	0.01946
Nepál	54,000	55.08	0.01815
Tonking	40,530	73.39	0.01363
Annam	39,758	74.82	0.01337
Azerbaijan	33,970	87.57	0.01142
Federated Malay States	27,506	108.14	0.00925
Smyrna	25,801	115.29	0.00867
Georgia	25,760	115.47	0.00866
Ceylon	25,481	116.74	0.00857
Khiva	24,000	123.94	0.00807
Malay Protectorate (including Johore)	23,486	126.65	0.00790
Cochin China	22,000	135.20	0.00740
Bhután	20,000	148.73	0.00672
Armenia	15,240	195.13	0.00512
Aden and Dependencies	9,005	330.33	0.00303
Palestine	9,000	330.51	0.00303
Timor, &c. (Portuguese Indian Archipelago)	7,330	405.81	0.00246
Brunei	4,000	743.64	0.00134
Cyprus	3,584	829.96	0.00120
Andaman and Nicobar Islands	2,895	1027.49	0.00097
Kiauchau (including Neutral Zone)	2,700	1101.70	0.00091
Goa, Damao, and Diu	1,638	1815.98	0.00055
Straits Settlements	1,600	1859.11	0.00054
Sokotra	1,382	2152.37	0.00046
Hong Kong and Dependencies	391	7607.62	0.00013
Wei-hai-wei	285	10437.13	0.00010
Bahrein Islands	250	11898.32	0.00008
French India (Pondicherry, &c.)	196	15176.43	0.00007
Kwang Chau Wan	190	15655.67	0.00006
Maldiv Islands	115	25865.92	0.00004
Macao, &c.	4	743645.25	..
Total, Asia	16,705,618	0.18	5.61612
<i>Africa—</i>			
French Sahara	1,544,000	1.93	0.51906
Sudan	1,014,400	2.93	0.34102
French Equatorial Africa	982,049	3.03	0.33015
Belgian Congo	909,654	3.27	0.30581
Angola	484,800	6.14	0.16298
Union of South Africa	473,096	6.29	0.15905
Rhodesia	440,000	6.76	0.14792
Portuguese East Africa	428,132	6.95	0.14393
Tripolitania and Cyrenaica	406,000	7.33	0.13649
Senegambia and Niger	366,700	8.11	0.12328

AREA OF AUSTRALIA IN COMPARISON WITH OTHER COUNTRIES—*continued.*

Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C'wealth.
<i>AFRICA—continued—</i>	<i>Sq. miles.</i>		
Tanganyika Territory	365,000	8.15	0.12271
Abyssinia	350,000	8.50	0.11766
Egypt	350,000	8.50	0.11766
Territory of the Niger	347,400	8.56	0.11679
Mauretania	344,967	8.62	0.11597
Nigeria and Protectorate	332,000	8.96	0.11161
South-west Africa	322,400	9.23	0.10838
Bechuanaland Protectorate	275,000	10.82	0.09245
Kenya Colony and Protectorate	245,060	12.14	0.08238
Madagascar	228,000	13.05	0.07665
Morocco	223,000	13.34	0.07497
Algeria (including Algerian Sahara)	222,180	13.39	0.07469
Kameroun (French)	166,489	17.87	0.05597
Upper Volta	154,400	19.27	0.05191
Italian Somaliland	139,430	21.33	0.04687
Ivory Coast	121,976	24.39	0.04101
Uganda Protectorate	110,300	26.97	0.03708
Rio de Oro and Adrar	109,200	27.24	0.03671
French Guinea	95,218	31.24	0.03201
Gold Coast Protectorate (with Nth. Territories)	80,000	37.18	0.02689
Senegal	74,112	40.14	0.02491
British Somaliland	68,000	43.74	0.02286
Tunis	50,000	59.49	0.01681
Eritrea	45,800	64.95	0.01540
Dahomey	42,460	70.06	0.01427
Liberia	40,000	74.36	0.01345
Nyassaland Protectorate	39,573	75.17	0.01330
Kameroun (British)	31,000	95.95	0.01042
Sierra Leone and Protectorate	31,000	95.95	0.01042
Togoland (French)	21,893	135.87	0.00736
Portuguese Guinea	13,940	213.38	0.00469
Togoland (British)	12,600	236.08	0.00424
Basutoland	11,716	253.89	0.00394
Spanish Guinea (Rio Muni, &c.)	9,470	314.11	0.00318
Spanish Morocco	7,700	386.31	0.00259
Swaziland	6,678	445.43	0.00225
French Somali Coast	5,790	513.74	0.00194
Gambia and Protectorate	4,134	719.54	0.00139
Cape Verde Islands	1,480	2009.85	0.00050
Comoro Islands, Mayotte, &c.	1,440	2065.68	0.00048
Zanzibar	1,020	2916.26	0.00034
Réunion	970	3066.58	0.00033
Ifni	965	3082.47	0.00032
Fernando Po, &c.	814	3654.27	0.00027
Mauritius and Dependencies	809	3676.86	0.00027
St. Thomas and Principe Islands	360	8262.73	0.00012
Seychelles	156	19067.83	0.00005
St. Helena	47	63288.96	0.00002
Ascension	34	87487.68	0.00001
Total, Africa	12,154,812	0.24	4.08623
<i>North and Central America and West Indies—</i>			
Canada	3,729,665	0.80	1.25385
United States (exclusive of Alaska, &c.)	2,973,774	1.00	0.99973
Mexico	767,198	3.88	0.25792
Alaska	590,884	5.03	0.19864
Newfoundland and Labrador	162,734	18.28	0.05471
Nicaragua	49,200	60.46	0.01654

AREA OF AUSTRALIA IN COMPARISON WITH OTHER COUNTRIES—*continued.*

Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C ['] wealth.
N. & C. AMERICA & W. INDIES— <i>continued</i> —		Sq. miles.	
Guatemala	48,290	61.60	0.01623
*Greenland	40,740	63.64	0.01571
Honduras	44,275	67.18	0.01488
Cuba	44,215	67.28	0.01486
Costa Rica	23,000	129.33	0.00773
Santo Domingo	19,332	153.87	0.00650
Salvador	13,183	225.64	0.00443
Haiti	10,204	291.51	0.00343
British Honduras	8,592	346.20	0.00289
Bahamas	4,404	675.43	0.00148
Jamaica	4,207	707.05	0.00141
Porto Rico	3,435	865.97	0.00115
Trinidad and Tobago	1,977	1505.23	0.00066
Guadeloupe and Dependencies	722	4119.92	0.00024
Leeward Islands	715	4160.25	0.00024
Windward Islands	527	5644.37	0.00018
Curaçao and Dependencies	403	7381.09	0.00014
Martinique	385	7726.18	0.00013
Turks and Caicos Islands	224	13279.38	0.00008
Barbados	166	17919.16	0.00006
Virgin Islands of U.S.A., late Danish West Indies	132	22534.70	0.00004
St. Pierre and Miquelon	93	31984.74	0.00003
Cayman Islands	89	33422.25	0.00003
Bermudas	19	156556.89	..
Total, N. and C. America and W. Indies	8,548,784	0.35	2.87394
South America—			
Brazil	3,275,510	0.91	1.10117
Argentine Republic	1,153,119	2.58	0.38766
Peru	722,461	4.12	0.24288
Bolivia	514,155	5.79	0.17285
Colombia (exclusive of Panama)	440,846	6.75	0.14820
Venezuela	398,594	7.46	0.13400
Chile	289,829	10.26	0.09744
Paraguay	175,673	16.93	0.05906
Ecuador	116,000	25.64	0.03900
British Guiana	89,480	33.24	0.03008
Uruguay	72,153	41.23	0.02426
Dutch Guiana	46,060	64.58	0.01548
Panama	32,380	91.86	0.01089
French Guiana	32,000	92.96	0.01076
Falkland Islands	6,500	457.63	0.00219
South Georgia	1,000	2974.58	0.00034
Panama Canal Zone	527	5644.37	0.00018
Total, South America	7,366,287	0.40	2.47641
Australasia and Polynesia—			
Commonwealth of Australia	2,974,581	1.00	1.00000
Dutch New Guinea	121,339	24.51	0.04079
New Zealand and Dependencies	103,861	28.64	0.03492
Papua	90,540	32.85	0.03044
Territory of New Guinea	89,390	33.28	0.03005
British Solomon Islands	11,000	270.42	0.00370
Fiji	7,435	400.08	0.00250
New Caledonia and Dependencies	7,237	411.02	0.00243

* Danish colony only. Total area has been estimated as between 827,000 and 850,000 square miles.

AREA OF AUSTRALIA IN COMPARISON WITH OTHER COUNTRIES—*continued.*

Country.	Area.	Australian Commonwealth in comparison with—	In comparison with Australian C ^o wealth.
AUSTRALASIA AND POLYNESIA—<i>continued</i>—	Sq. miles.		
Hawaii	6,449	461.25	0.00217
New Hebrides	5,500	540.83	0.00185
French Establishments in Oceania	1,520	1956.96	0.00051
Territory of Western Samoa	1,260	2360.78	0.00042
Marianne, Caroline, and Marshall Islands	960	3093.52	0.00032
Tonga	385	7726.18	0.00013
Guam	225	13220.36	0.00008
Gilbert and Ellice Islands	208	14300.87	0.00007
Samoa (U.S.A. part)	102	29162.56	0.00003
Norfolk Island	13	223813.92	—
Nauru Island	12	247881.75	—
Total, Australasia and Polynesia	3,422,017	0.87	1.15042
British Empire	13,257,534	0.22	4.45696

The above figures are extracted from the Statesman's Year-Book for 1922, but, as several of the boundaries have not yet been finally adjusted since the war, modifications will in some instances be necessary.

3. **Relative Areas of Political Subdivisions.**—As already stated, Australia consists of six States and the Northern and Federal Territories. The areas of these, in relation to one another and to the total of Australia, are shewn in the following table :—

RELATIVE AREAS OF STATES, TERRITORIES, AND COMMONWEALTH.

State or Territory.	Area.	Ratio which the Area of each State and Territory bears to that of other States, Territories, and Commonwealth.							
		N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	N. Ter.	C'wlth.
	Sq. miles.								
New South Wales	309,432	1.000	3.521	0.461	0.814	0.317	11.804	0.591	0.104
Victoria ..	87,884	0.284	1.000	0.131	0.231	0.090	3.352	0.168	0.030
Queensland ..	670,500	2.167	7.629	1.000	1.764	0.687	25.577	1.280	0.225
South Australia	380,070	1.228	4.325	0.567	1.000	0.389	14.498	0.726	0.128
West. Australia	975,920	3.154	11.105	1.456	2.568	1.000	37.228	1.864	0.328
Tasmania ..	26,215	0.085	0.298	0.039	0.069	0.027	1.000	0.050	0.009
North. Territory	523,620	1.692	5.958	0.781	1.378	0.537	19.974	1.000	0.176
Federal Territory	940	0.003	0.011	0.001	0.002	0.001	0.036	0.002	0.0004
Commonwealth	2,974,581	9.613	33.847	4.436	7.826	3.048	113.469	5.681	1.000

(a) The correct decimal is 0.0003.

Thus, looking at the top line, New South Wales is seen to be over three-and-a-half times as large as Victoria (3.521) and less than one-half the size of Queensland (0.461); or again, looking at the bottom line, the Commonwealth is shewn to be more than nine-and-a-half times as large as New South Wales (9.613), and nearly thirty-four times as large as Victoria (33.847).

These relative magnitudes are shewn in the small diagram below. It may be added that Papua (or British New Guinea), with its area of 90,540 square miles, is 0.030 of the area of the Commonwealth. The comparatively small size of the Federal Territory prevents its being shewn in this diagram.

% on	N.S.W.	V.	Qld.	S.A.	N.T.	W.A.	Tas.
total ..	10	3	22	13	18	33	1

4. *Coastal Configuration*.—There are no striking features in the configuration of the coast; the most remarkable indentations are the Gulf of Carpentaria on the north and the Great Australian Bight on the south. The Cape York Peninsula on the extreme north is the only other remarkable feature in the outline. In Year Book No. 1, an enumeration of the features of the coast-line of Australia was given (see pp. 60 to 68).

(i) *Coast-line*. The lengths of coast-line, exclusive of minor indentations, both of each State and of the whole continent, are shewn in the following table :—

SQUARE MILES OF TERRITORY PER MILE OF COAST LINE.

STATES, TERRITORY, AND CONTINENT.

State.	Coast-line.	Area ÷ Coast-line.	State.	Coast-line.	Area ÷ Coast-line.
	Miles.	Sq. miles.		Miles.	Sq. miles.
New South Wales(a)	700	443	South Australia	1,540	247
Victoria ..	680	129	Western Australia	4,350	224
Queensland ..	3,000	223	Continent (b) ..	11,310	261
Northern Territory	1,040	503	Tasmania ..	900	29

(a) Including Federal Territory.

(b) Area 2,948,366 square miles.

For the entire Commonwealth this gives a coast-line of 12,210 miles, and an average of 244 square miles for one mile of coast-line. According to Strelbitski, Europe has only 75 square miles of area to each mile of coast-line, and, according to recent figures, England and Wales have only one-third of this, viz., 25 square miles.

(ii) *Historical Significance of Coastal Names*. It is interesting to trace the voyages of some of the early navigators by the names bestowed by them on various coastal features—thus Dutch names are found on various points of the Western Australian coast, in Nuyt's Archipelago, in the Northern Territory and in the Gulf of Carpentaria; Captain Cook can be followed along the coasts of New South Wales and Queensland; Flinders' track is easily recognised from Sydney southwards, as far as Cape Catastrophe, by the numerous Lincolnshire names bestowed by him; and the French navigators of the end of the eighteenth and the beginning of the nineteenth century have left their names all along the Western Australian, South Australian, and Tasmanian coasts.

5. *Geographical Features of Australia*.—In each of the earlier issues of this Year Book fairly complete information has been given concerning some special geographical element. Thus No. 1 Year Book, pp. 60–68, contains an enumeration of Coastal features; No. 2, pp. 66–67, deals with Hydrology; No. 3, pp. 59–72, with Orography; No. 4, pp. 59–82, with the Lakes of Australia; No. 5, pp. 51–80, with the Islands of Australia; No. 6, pp. 55–66, with the Mineral Springs of Australia; No. 7, pp. 56–58, with the Salient Features in the Geological History of Australia, with special reference to changes of climate. A special article dealing with the plains and peneplains of Australia appeared in No. 12 Year Book, pp. 82–88. In No. 13 and No. 14 respectively, articles were published on Past Glacial Action in Australia, and on Evidences of Past Volcanic Action in Australia. This practically completes the description of the ordinary physical features.

§ 2. The Fauna of Australia.

An authoritative article describing in some detail the principal features of the Fauna of Australia was given in Year Books No. 1 (see pp. 103 to 109) and No. 2 (see pp. 111 to 117), while a synoptical statement appeared in No. 3 (see pp. 73 to 76). Considerations of space, however, preclude the inclusion in this issue of more than a passing reference to the subject.

§ 3. The Flora of Australia.

In Year Books No. 1 (see pp. 109 to 114) and No. 2 (see pp. 117 to 122) a fairly complete though brief account was given of the Flora of Australia, and in Year Book No. 3 similar information in a greatly condensed form will be found on pp. 76 to 78. Space in this issue will not permit of more than a mere reference to preceding volumes.

A special article dealing with Australian fodder plants, contributed by J. H. Maiden, Esq., F.L.S., Government Botanist of New South Wales, and Director of the Botanic Gardens, Sydney, appeared in Official Year Book No. 6, pp. 1190-6. A special article on the grasses and saltbushes of Australia, contributed by E. Breakwell, B.A., B.Sc., Agrostologist at the Botanic Gardens, Sydney, appeared in Year Book No. 9, pp. 84-90. Year Book No. 10 contained two special articles; one dealing with Australian eucalyptus timbers, contributed by R. T. Baker, F.L.S., appeared on pp. 85 to 92, and one by H. G. Smith, F.C.S., dealing with the chemical products of Australian eucalypts, appeared on pp. 92-98.

§ 4. Seismology in Australia.

A brief statement regarding the position of seismology and seismological record in Australia appeared in Year Book No. 4, pp. 82 and 83.

§ 5. The Geology of Australia.

1. **General.**—Independent and authoritative sketches of the geology of each State were given in Year Books No. 1 (see pp. 73 to 103) and No. 2 (see pp. 78 to 111). Want of space has precluded the insertion of these sketches in the present issue of the Year Book, and it has not been considered possible to give anything like a sufficient account of the geology of Australia by presenting here a mere condensation of these sketches. Reference must, therefore, be made to either Year Book No. 1 or No. 2, *ut supra*.

2. **Geological Map of Australia.**—The map shewing the geographical distribution of the more important geological systems and formations, which appeared on page 51 of Year Book No. 12 and in preceding issues, has been discontinued pending the preparation of a new map embodying later information.

3. **The Plains and Peneplains of Australia.**—A special article dealing with this subject appears on pp. 82-88 of Year Book No. 12.

4. **The Building Stones of Australia.**—Independent and authoritative descriptions of the building stones of each State (with the exception of Queensland) will be found in Official Year Book No. 9, pp. 446-466.

A special article dealing with "The Building Stones of Queensland" will be found on pp. 89-95 of Year Book No. 12.

5. **Past Glacial Action in Australia.**—A special article on this subject will be found in Year Book No. 13, pp. 1133 *et seq.*

6. **Evidences of Past Volcanic Action in Australia.**—See special article in Year Book No. 14, pp. 46 *et seq.*

§ 6. Climate and Meteorology of Australia.*

1. **Introductory.**—In preceding Year Books some account was given of the history of Australian meteorology, including reference to the development of magnetic observations and the equipment for the determination of various climatological records. (See Year Book No. 3, pp. 79, 80.) In Year Book No. 4, pp. 84 and 87, will be found a short sketch of the creation and organisation of the Commonwealth Bureau of Meteorology and a résumé of the subjects dealt with at the Meteorological Conference of 1907. Space will not permit of the inclusion of this matter in the present issue. In the Section of this Year Book dealing with population, a table will be found showing the population and average rainfall of the principal urban incorporated areas in the Commonwealth.

In addition, fifteen Bulletins of Climatology have been published, particulars of which are given in preceding issues of the Official Year Book (see No. 12, page 54).

2. **Meteorological Publications.**—The following publications are issued daily from the Central Meteorological Bureau, viz.:—(i) Weather charts. (ii) Rainfall maps. (iii) Bulletins, Victorian and Interstate, shewing pressure, temperature, wind, rain, cloud extent, and weather. Similar publications are also issued from the divisional offices in each of the State Capitals.

Commencing with January, 1910, the "Australian Monthly Weather Report," containing statistical records from representative selected stations, with rain maps and diagrams, &c., is being published. Complete rainfall and other climatological data are published in annual volumes of meteorological statistics for each State separately.

The first text book of Australian meteorology, "Climate and Weather of Australia," was published in 1913.

3. **General Description of Australia.**—In the general description of Australia, page 40, it is pointed out that a considerable portion (0.530) of three divisions of the Australian Commonwealth is north of the tropic of Capricorn, that is to say, within the States of Queensland and Western Australia, and the Northern Territory, no less than 1,149,320 square miles belong to the tropical zone, and 1,020,720 to the temperate zone. The whole area of the Commonwealth within the temperate zone, however, is 1,825,261 square miles; thus the tropical part is about 0.386, or about five-thirteenths of the whole, or the "temperate" region is half as large again as the "tropical" (more accurately 1.591). By reason of its insular geographical position, and the absence of striking physical features, Australia is, on the whole, less subject to extremes of weather than are regions of similar area in other parts of the globe; and latitude for latitude Australia is, on the whole, more temperate.

The altitudes of the surface of Australia range up to a little over 7,300 feet, hence its climate embraces a great many features, from the characteristically tropical to what is essentially alpine, a fact indicated in some measure by the name Australian Alps given to the southern portion of the great Dividing Range.

While on the coast the rainfall is often abundant and the atmosphere moist, in some portions of the interior the rainfall is very limited, and the atmosphere dry. The distribution of forest, as might be expected, and its climatic influence, is consequently very variable. In the interior there are on the one hand fine belts of trees, on the other there are large areas which are treeless, and where the air is hot and parched in summer. Again, on the coast, even as far south as latitude 35°, the vegetation is tropical in its luxuriance, and also somewhat so in character. Climatologically, therefore, Australia may be said to present a great variety of features. The various climatological characteristics will be referred to in detail.

* Prepared from data supplied by the Commonwealth Meteorologist, H. A. Hunt, Esquire, F.R. Met. Soc.

4. *Meteorological Divisions.*—The Commonwealth Meteorologist has divided Australia, for climatological and meteorological purposes, into five divisions. The boundaries between these may be thus defined :—(a) Between divisions I. and II., the boundary between South and Western Australia, viz., the 129th meridian of east longitude; (b) between divisions II. and III., starting at the Gulf of Carpentaria, along the Norman River to Normanton, thence a straight line to Wilcannia on the Darling River, New South Wales; (c) between divisions II. and IV., from Wilcannia along the Darling River to its junction with the Murray; (d) between divisions II. and V., from the junction of the Darling and Murray Rivers, along the latter to Encounter Bay; (e) between divisions III. and IV., starting at Wilcannia, along the Darling, Barwon, and Dumaresq Rivers to the Great Dividing Range, and along that range and along the watershed between the Clarence and Richmond Rivers to Evans Head on the east coast of Australia; (f) between divisions IV. and V., from the junction of the Darling and Murray Rivers along the latter to its junction with the Murrumbidgee, along the Murrumbidgee to the Tumut River, and along the Tumut River to Tumut, thence a straight line to Cape Howe; (g) division V. includes Tasmania.

The population included within these boundaries at the Census of the 4th April, 1921, was approximately as follows :—

Division	I.	II.	III.	IV.	V.
Population	332,000	500,000	824,000	1,915,000	1,866,000

In these divisions the order in which the capitals occur is as follows :—(i) Perth, (ii) Adelaide, (iii) Brisbane, (iv) Sydney, (v) Melbourne, and (vi) Hobart; and for that reason the climatological and meteorological statistics will be set forth in the indicated order in this publication.

Special Climatological Stations. The latitudes, longitudes, and altitudes of special stations, the climatological features of which are graphically represented hereinafter, are as follows :—

SPECIAL CLIMATOLOGICAL STATIONS.

Locality.	Height above Sea Level.	Latitude.		Longitude.		Locality.	Height above Sea Level.	Latitude.		Longitude.	
		S.		E.				S.		E.	
	Feet.	deg.	min.	deg.	min.		Feet.	deg.	min.	deg.	min.
Perth ..	197	31	57	115	50	Darwin ..	97	12	28	130	51
Adelaide ..	140	34	56	138	35	Daly Waters	691	16	16	133	23
Brisbane ..	137	27	28	153	2	Alice Springs	1,926	23	38	133	37
Sydney ..	133	33	52	151	12	Pubbo ..	870	32	18	148	35
Melbourne ..	115	37	49	144	58	Laverton, W.A.	1,530	28	40	122	23
Hobart ..	177	42	53	147	20	Coolgardie ..	1,389	30	57	121	10

5. *Temperatures.*—In respect of Australian temperatures generally it may be pointed out that the isotherm for 70° Fahrenheit extends in South America and South Africa as far south as latitude 33°, while in Australia it reaches only as far south as latitude 30°, thus shewing that, on the whole, Australia has a more temperate climate when compared latitude for latitude with other places in the Southern Hemisphere.

The comparison is even more favourable when the Northern Hemisphere is included therein, for in the United States the 70° isotherm extends in several of the western States as far north as latitude 41°. In Europe the same isotherm reaches almost to the southern shores of Spain, passing, however, afterwards along the northern shores of Africa till it reaches the Red Sea, when it bends northward along the eastern shore of the Mediterranean till it reaches Syria. In Asia nearly the whole of the land area south of latitude 40° N. has a higher isothermal value than 70°.

The extreme range of shade temperatures in summer and winter in a very large part of Australia amounts to probably only 81°. In Siberia, in Asia, the similar range is no less than 171°, and in North America 153°, or approximately double the Australian range.

Along the northern shores of the Australian continent the temperatures are very equable. At Darwin, for example, the difference in the means for the hottest and coldest months is only 8.2°, and the extreme readings for the year, that is, the highest maximum in the hottest month and the lowest reading in the coldest month, shew a difference of under 50°.

Coming southward the extreme range of temperature increases gradually on the coast, and in a more pronounced way inland.

The detailed temperature results for the several capitals of the States of Australia are shewn in the Climatological Tables hereinafter.

(i) *Hottest and Coldest Parts.* A comparison of the temperatures recorded at coast and inland stations shews that, in Australia as in other continents, the range increases with increasing distance from the coast.

In the interior of Australia, and during exceptionally dry summers, the temperature occasionally reaches or exceeds 120° in the shade, and during the dry winters the major portion of the country to the south of the tropics is subject to ground frosts. An exact knowledge of temperature disposition cannot be determined until the interior becomes more settled, but from data procurable it would appear that the hottest area of the continent is situated in the northern part of Western Australia about the Marble Bar and Nullagine goldfields, where the maximum shade temperature during the summer sometimes exceeds 100° for days, and even weeks, continuously. The coldest part of the Commonwealth is the extreme south-east of New South Wales and extreme east of Victoria, namely, the region of the Australian Alps. Here the temperature seldom, if ever, reaches 100°, even in the hottest of seasons.

Tasmania, although occasionally hot winds may cross the Straits and cause the temperature to rise to 100° in the low-lying parts, as a whole enjoys a most moderate and equable range of temperature throughout the year.

(ii) *Monthly Maximum and Minimum Temperatures.* The normal monthly maximum and minimum temperatures can be best shewn by means of graphs, which exhibit the nature of the fluctuation of each for all available years. In the diagram (on page 65) for nine representative places in Australia, the upper heavy curves shew the mean maximum, the lower heavy curves the mean minimum temperatures based upon daily observations. On the same diagram the thin curves shew the relative humidities (see next paragraph).

6. Relative Humidity.—Next after temperature the degree of humidity may be regarded as of great importance as an element of climate; and the characteristic differences of relative humidity between the various capitals of Australia call for special remark. For six representative places the variations of humidity are shewn on the graph on page 65, which gives results based upon daily observations of the dry and wet bulb thermometers for all available years. Hitherto difficulties have been experienced in many parts of Australia in obtaining satisfactory observations for a continuous period of any length. For this reason it has been thought expedient to refer to the record of humidity at first order stations only, where the results are thoroughly reliable. Throughout, the degree of humidity given will be what is known as *relative humidity*, that is, the percentage of aqueous vapour actually existing to the total possible if the atmosphere were saturated.

The detailed humidity results for the several State capitals are given in the Climatological Tables hereinafter. From these, it is seen that, in respect of relative humidity, Sydney and Hobart have the first place, while Brisbane, Melbourne, Perth, and Adelaide follow in the order stated, Adelaide being the driest. The graphs on page 65 shew the annual variations in humidity. It will be observed that the *relative humidity* is ordinarily but not invariably great when the temperature is low.

7. **Evaporation.**—The rate and quantity of evaporation in any territory is influenced by the prevailing temperature, and by atmospheric humidity, pressure and movement. In Australia the question is of perhaps more than ordinary importance, since in its drier regions water has often to be conserved in “tanks”* and dams. The magnitude of the economic loss by evaporation will be appreciated from the records on pages 67 and 60 to 64 and 73, which shew that the yearly amount varies from about 33 inches at Hobart to 94 inches at Alice Springs in the centre of the Continent.

(i) *Monthly Evaporation Curves.* The curves shewing the mean monthly evaporation in various parts of the Commonwealth will disclose how characteristically different are the amounts for the several months in different localities. The evaporation for characteristic places is shewn on the diagram shewing also rainfalls (see page 66).

(ii) *Loss by Evaporation.* In the interior of Australia the possible evaporation is greater than the actual rainfall. Since, therefore, the loss by evaporation depends largely on the exposed area, tanks and dams so designed that the surface shall be a minimum are advantageous. Similarly, the more protected from the direct rays of the sun and from winds, by means of suitable tree planting, the less will be the loss by evaporation: these matters are of more than ordinary concern in the drier districts of Australia.

8. **Rainfall.**—As even a casual reference to climatological maps, indicating the distribution of rainfall and prevailing direction of wind, would clearly shew, the rainfall of any region is determined mainly by the direction and route of the prevailing winds, by the varying temperatures of the earth's surface over which they blow, and by the physiographical features generally.

Australia lies within the zone of the south-east trade and prevailing westerly winds. The southern limit of the south-east trade strikes the eastern shores at about 30° south latitude, and, with very few exceptions, the heaviest rains of the Australian continent are precipitated along the Pacific slopes to the north of that latitude, the varying quantities being more or less regulated by the differences in elevation of the shores and of the chain of mountains, upon which the rain-laden winds blow, from the New South Wales northern border to Thursday Island. The converse effect is exemplified on the north-west coast of Western Australia, where the prevailing winds, blowing from the interior of the continent instead of from the ocean, result in the lightest coastal rain in Australia.

The westerly winds, which skirt the southern shores, are responsible for the very reliable, although generally light to moderate, rains enjoyed by the south-western portion of Western Australia, by the south-eastern agricultural areas of South Australia, by a great part of Victoria, and by the whole of Tasmania.

(i) *Factors determining Distribution and Intensity of Rainfall.*

(ii) *Time of Rainfall.*

In Year Book No. 6 (see pp. 72 to 74) some notes were given of the various factors governing the distribution, intensity and period of Australian rainfall.

(iii) *Wettest and Driest Regions.* The wettest known part of Australia is on the north-east coast of Queensland, between Port Douglas and Cardwell, where three stations situated on, or adjacent to, the Johnstone and Russell Rivers have an average annual rainfall of between 148 and 166 inches. The maximum and minimum falls there are:—Goondi, 241.53 in 1894 and 67.88 inches in 1915, or a range of 173.65 inches; Innisfail, 211.24 in 1894 and 69.87 inches in 1902, or a range of 141.37 inches; Harvey's Creek, 254.77 in 1921 and 80.47 inches in 1902, or a range of 174.30 inches.

On four occasions more than 200 inches have been recorded at Goondi, the last of these being in 1910, when 204.82 inches were registered. The record at this station covers a period of 35 years.

Harvey's Creek in the shorter period of 22 years has three times exceeded 200 inches, the total for 1910 being 201.28 inches, and at the South Johnstone Sugar Experiment Station, where a gauge has recently been established, 202.52 inches were recorded in 1921.

The driest known part of the continent is about the Lake Eyre district in South Australia (the only part of the continent below sea level), where the annual average is but 5 inches, and where the fall rarely exceeds 10 inches for the twelve months.

The inland districts of Western Australia were at one time regarded as the driest part of Australia, but authentic observations in recent years over the settled districts in the east of that State shew that the annual average is from 10 to 12 inches.

* In Australia artificial storage ponds or reservoirs are called “tanks.”

(iv) *Quantities and Distribution of Rainfall generally.* The departure from the normal rainfall increases greatly and progressively from the southern to the northern shores of the continent, and similarly also at all parts of the continent subject to capricious monsoonal rains, as the comparisons hereunder will shew. The general distribution is best seen from the map on page 72, shewing the areas subject to average annual rainfalls lying between certain limits. The areas enjoying varying quantities of rainfall determined from the latest available information are shewn in the following table :—

DISTRIBUTION OF AVERAGE RAINFALL.

Average Annual Rainfall.	N.S.W. (a)	Victoria.	Queens- land.	South Australia.	Northern Territory	Western Australia.	Tas- mania. (b)	Common- wealth. (b)
	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.	sqr. mls.
Under 10 inches	44,997	nil	91,012	317,600	138,190	513,653	nil	1,105,452
10—15 "	77,268	19,912	87,489	33,405	141,570	232,815	nil	592,459
15—20 "	57,639	12,626	112,738	14,190	62,920	89,922	937	350,972
20—30 "	77,202	29,317	213,779	13,827	93,470	95,404	7,559	530,558
30—40 "	30,700	14,029	69,880	984	40,690	40,750	4,588	201,621
Over 40 "	22,566	12,000	95,602	64	46,780	3,376	10,101	190,489
Total area ..	310,372	87,884	670,500	380,070	523,620	975,920	26,215	2,974,581

(a) Including Federal Capital Territory. (b) Over an area of 3,030 square miles no records are available.

Referring first to the capital cities, the complete records of which are given on the following page, it is seen that Sydney with a normal rainfall of 48.27 inches occupies the chief place, Brisbane, Perth, Melbourne, Hobart and Adelaide following in that order, Adelaide with 21.05 inches being the driest. The extreme range from the wettest to the driest year is greatest at Brisbane (72.09 inches) and least at Adelaide (19.48 inches).

In order to shew how the rainfall is distributed throughout the year in various parts of the continent, the figures of representative towns have been selected. (See map on page 71.) Darwin, typical of the Northern Territory, shews that in that region nearly the whole of the rainfall occurs in the summer months, while little or none falls in the middle of the year. The figures for Perth, as representing the south-western part of the continent, are the reverse, for while the summer months are dry, the winter ones are very wet. In Melbourne and Hobart the rain is fairly well distributed throughout the twelve months, with a maximum in October in the former, and in November in the latter. The records at Alice Springs and Daly Waters indicate that in the central parts of Australia the wettest months are in the summer and autumn. In Queensland, as in the Northern Territory, the heaviest rains fall in the summer months, but good averages are also maintained during the other seasons.

On the coast of New South Wales, the first six months of the year are the wettest, with a maximum in the autumn; the averages during the last six months are fair and moderately uniform. In general it may be said that one-third of the area of the continent, principally in the eastern and northern parts, enjoys an annual average rainfall of from 20 to 50 or more inches, the remaining two-thirds receiving generally from about 10 to 20 inches.

(v) *Curves of Rainfall and Evaporation.* The relative amounts of rainfall and evaporation at different times through the year are best seen by referring to the graphs for a number of characteristic places. (See page 66.) It will be recognised at once how large is the evaporation when water is fully exposed to the direct rays of the sun, and to wind.

(vi) *Tables of Rainfall.* The table of rainfall for a long period of years for each of the various Australian capitals affords information as to the variability of the fall in successive years, and the list of the more remarkable falls furnishes information as to what may be expected on particular occasions.

RAINFALL AT THE AUSTRALIAN CAPITALS, 1860 TO 1921.

Year.	PERTH.			ADELAIDE.			BRISBANE.			SYDNEY.			MELBOURNE.			HOBART.		
	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.	Amount.	No. of Days.	10 Years' Means.
	in.		in.	in.		in.	in.		in.	in.		in.	in.		in.	in.		in.
1860	..	..	..	19.67	119	..	54.63	144	..	82.76	180	..	25.38	133	..	21.05	142	..
1	..	..	..	24.04	147	..	69.45	155	..	59.36	157	..	29.16	159	..	23.19	167	..
2	..	..	..	21.85	119	..	28.27	98	..	23.99	108	..	22.08	139	..	21.72	148	..
3	..	..	..	23.68	145	..	68.83	146	..	47.08	152	..	36.42	165	..	40.67	163	..
4	..	..	..	19.75	121	..	47.00	114	..	69.12	185	..	27.40	144	..	28.11	142	..
5	..	..	..	15.51	108	..	20.11	116	..	36.15	140	..	15.94	119	..	23.07	146	..
6	..	..	..	20.11	116	..	24.11	52	..	36.91	156	..	22.41	107	..	23.55	127	..
7	..	..	..	19.05	112	..	61.04	142	..	59.56	140	..	25.79	133	..	22.27	139	..
8	..	..	..	19.99	113	19.85	35.98	110	47.55	42.98	161	49.99	18.27	120	24.47	18.08	112	25.00
9	..	..	..	14.74	117	..	54.39	114	..	48.00	150	..	24.58	129	..	23.87	131	..
1870	..	..	..	23.84	119	..	79.06	154	..	64.47	179	..	33.77	129	..	27.53	123	..
1	..	..	..	23.25	137	..	45.45	119	..	52.27	141	..	30.17	125	..	18.25	131	..
2	..	..	..	26.66	146	..	49.22	131	..	37.12	161	..	32.32	136	..	31.76	160	..
3	..	..	..	21.00	139	..	62.02	138	..	73.40	177	..	25.61	134	..	23.43	157	..
4	..	..	..	17.23	127	..	38.71	135	..	68.60	173	..	23.10	134	..	24.09	138	..
5	..	..	..	29.21	157	..	67.03	162	..	46.25	153	..	32.87	158	..	29.25	182	..
6	23.73	100	..	13.43	110	..	53.42	130	..	45.69	156	..	24.04	134	..	23.63	173	..
7	20.48	103	..	24.95	135	..	30.28	119	..	58.66	147	..	24.10	124	..	20.82	165	..
8	39.72	143	29.64	22.08	112	21.24	56.33	134	53.59	49.77	129	54.03	25.36	116	28.11	29.76	183	25.24
9	41.34	106	(3 yr.)	20.69	130	..	67.30	157	..	63.19	167	..	19.28	127	..	21.07	210	..
1880	31.79	116	..	22.48	142	..	49.12	134	..	29.51	142	..	28.48	147	..	..	..	..
1	24.78	101	..	18.02	135	..	29.39	117	..	40.99	163	..	24.08	134	..	..	..	..
2	35.68	109	..	15.70	134	..	42.62	121	..	42.28	112	..	22.40	131	..	30.69	..	..
3	39.65	122	..	26.76	161	..	32.22	114	..	46.92	157	..	23.71	130	..	24.05	161	..
4	31.96	92	..	18.74	138	..	43.49	136	..	44.04	159	..	25.85	128	..	21.55	171	..
5	33.44	110	..	15.89	133	..	26.85	112	..	39.91	145	..	26.94	123	..	28.29	176	..
6	28.90	89	..	14.42	141	..	53.66	152	..	39.43	152	..	24.00	128	..	21.39	189	..
7	37.52	105	..	25.70	164	..	81.54	242	..	60.16	190	..	32.39	153	..	24.21	174	..
8	27.83	117	33.29	14.55	131	19.30	33.08	143	45.93	23.01	132	42.94	19.42	123	24.66	18.45	151	23.71
9	39.96	123	..	30.87	143	..	49.36	155	..	57.16	186	..	27.14	125	..	30.80	180	(8 yr.)
1890	46.73	126	..	25.78	139	..	73.02	162	..	81.42	184	..	24.24	140	..	27.51	173	..
1	30.33	93	..	14.01	113	..	41.68	143	..	55.30	200	..	26.73	126	..	23.25	160	..
2	31.23	122	..	21.53	137	..	61.98	146	..	69.26	189	..	24.96	124	..	15.62	120	..
3	40.12	145	..	21.49	129	..	88.26	147	..	49.90	209	..	26.80	140	..	27.46	146	..
4	23.72	103	..	20.78	134	..	44.02	143	..	38.22	188	..	22.60	138	..	27.39	141	..
5	30.31	123	..	21.28	130	..	59.11	105	..	31.86	170	..	17.04	131	..	25.40	121	..
6	31.50	103	..	15.17	121	..	44.97	121	..	42.40	157	..	25.16	124	..	21.61	135	..
7	27.17	106	..	15.42	119	..	42.53	115	..	42.52	136	..	25.85	117	..	20.45	153	..
8	31.76	118	33.55	20.75	116	20.71	60.06	131	56.80	43.17	143	51.12	15.61	102	23.61	20.40	164	24.29
9	32.40	107	..	18.84	119	..	38.85	141	..	55.90	174	..	28.87	116	..	20.68	170	..
1900	36.61	124	..	21.63	133	..	34.41	110	..	66.54	170	..	23.09	139	..	19.14	135	..
1	36.75	122	..	18.01	124	..	38.48	110	..	40.10	149	..	27.45	113	..	25.11	149	..
2	27.06	93	..	16.02	123	..	16.17	87	..	43.07	180	..	23.08	102	..	21.85	150	..
3	35.69	140	..	25.47	134	..	49.27	136	..	38.62	173	..	28.43	130	..	25.86	139	..
4	34.35	125	..	20.31	117	..	33.23	124	..	45.93	158	..	29.72	128	..	22.41	139	..
5	34.61	116	..	22.28	131	..	36.76	108	..	35.03	145	..	25.64	129	..	32.09	168	..
6	32.37	121	..	26.51	127	..	42.85	125	..	31.89	160	..	22.29	114	..	23.31	155	..
7	40.12	132	..	17.78	125	..	31.46	119	..	31.32	132	..	22.26	102	..	25.92	166	..
8	30.52	106	34.05	24.56	125	21.15	44.01	125	30.55	45.65	167	43.41	17.72	130	25.36	16.50	148	23.29
9	39.11	107	..	27.69	138	..	34.06	111	..	32.45	177	..	25.86	171	..	27.29	170	..
1910	37.02	135	..	24.62	116	..	49.00	133	..	46.91	160	..	24.61	167	..	25.22	205	..
11	23.38	108	..	15.99	127	..	35.21	128	..	50.24	155	..	36.61	168	..	26.78	193	..
12	27.85	123	..	19.57	116	..	41.30	114	..	47.51	172	..	20.37	157	..	23.14	181	..
13	38.28	141	..	18.16	102	..	40.81	115	..	57.70	141	..	21.17	157	..	18.36	165	..
14	20.21	128	..	11.39	91	..	33.99	141	..	56.42	149	..	18.57	129	..	15.42	154	..
15	43.61	164	..	19.38	117	..	25.66	93	..	34.83	117	..	20.95	167	..	20.91	196	..
16	35.16	128	..	28.16	142	..	52.80	136	..	44.91	161	..	38.04	170	..	43.39	203	..
17	45.64	146	..	23.90	153	..	40.92	127	..	52.40	151	..	30.57	171	..	30.62	214	..
18	39.58	138	34.98	17.41	107	21.13	24.95	121	37.87	42.99	149	46.64	27.13	160	26.39	26.04	179	25.82
19	30.66	120	..	17.21	108	..	19.36	96	..	58.71	152	..	24.89	141	..	22.48	153	..
20	40.35	124	..	26.70	119	..	39.72	122	..	43.42	159	..	28.27	162	..	18.00	182	..
21	41.09	135	..	22.64	100	..	53.31	167	..	43.34	140	..	29.76	154	..	18.04	159	..
Aver.	..	..	33.91	..	..	21.05	..	..	45.46	..	..	48.27	..	..	26.24	..	..	23.59
No. of Yrs.	..	..	(46)	..	..	(88)	..	..	(72)	..	..	(82)	..	..	(78)	..	..	(79)

NOTE.—The above average Rainfall figures for Brisbane, Sydney, and Melbourne differ slightly from the mean annual falls given in the Climatological Tables on pp. 62–64, which are for a less number of years.

9. Remarkable Falls of Rain.—The following are the more remarkable falls of rain in the various States and in the Northern Territory, which have occurred within a period of twenty-four hours. In New South Wales and Queensland falls of less than 15 inches in the 24 hours are not included. Reference, however, to them may be found in preceding Official Year Books:—

HEAVY RAINFALLS, NEW SOUTH WALES, UP TO 1921, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Anthony ..	28 Mar., 1887	17.14	Madden's Creek ..	13 Jan., 1911	18.68
Bega ..	27 Feb., 1919	17.88	Morpeth ..	9 Mar., 1893	21.52
Broger's Creek ..	14 „ 1898	20.05	Mount Kembla ..	13 Jan., 1911	18.25
„ ..	13 Jan., 1911	20.83	Numbugga ..	27 Feb., 1919	17.87
Bulli Mountain ..	13 Dec., 1898	17.14	Tongarra Farm ..	14 „ 1898	15.12
Burragate ..	27 „ 1919	16.38	Towamba ..	5 Mar., 1893	20.00
Candelo ..	27 Feb., „	18.58	South Head (near Sydney) ..	29 Apr., 1841	20.12
Condong ..	27 Mar., 1887	18.66	„ ..	16 Oct., 1844	20.41
Cordeaux River ..	14 Feb., 1898	22.58			
Kembla Heights ..	13 Jan., 1911	17.46			

HEAVY RAINFALLS, QUEENSLAND, UP TO 1921, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Anglesey ..	26 Dec., 1909	18.20	Flying Fish Point	31 Jan., 1913	16.10
Atherton (Cairns) ..	31 Jan., 1913	16.69	Gladstone ..	4 Feb., 1911	18.83
Babinda (Cairns) ..	1 Feb., „	20.51	Glen Boughton ..	5 Apr., 1894	18.50
„ ..	24 Jan., 1916	22.30	Goldsborough		
„ ..	21 Apr., 1920	16.05	(Cairns) ..	31 Jan., 1913	19.92
Babinda ..	25 Mar., 1921	15.76	Goondi Mill (Innisfail) ..	6 Apr., 1894	15.69
Bloomsbury ..	14 Feb., 1893	17.40	„ ..	29 Dec., 1903	17.83
„ ..	10 Jan., 1901	16.62	„ ..	10 Feb., 1911	17.68
Brisbane ..	21 „ 1887	18.31	„ ..	6 Apr., 1912	15.55
Buderim Mountain	11 „ 1898	26.20	„ ..	30 Jan., 1913	24.10
Bundaberg ..	16 „ 1913	16.94	Goondi ..	23 „ 1918	18.17
Burnett Head (Bundaberg) ..	16 „ 1913	15.22	Goorganga ..	5 Feb., 1899	15.37
Cairns ..	11 Feb., 1911	15.17	Halifax ..	6 Jan., 1901	15.68
„ ..	2 Apr., „	20.16	„ ..	2 „ 1911	18.61
Carbrook ..	23 Jan., 1918	22.66	Hambledon Mill ..	1 Apr., „	19.62
„ ..	24 „ „	15.77	„ ..	30 Jan., 1913	17.32
Cardwell ..	18 Mar., 1904	18.24	Hampden ..	23 Apr., 1918	17.30
Carmilla ..	23 Jan., 1918	15.92	„ ..	24 „ „	17.19
Clare ..	26 „ 1896	15.30	Harvey Creek ..	8 Mar., 1899	17.72
Collaroy ..	23 „ 1918	18.06	„ ..	11 Jan., 1905	16.96
Crohamhurst			„ ..	3 „ 1911	27.75
(Blackall Range)	2 Feb., 1893	35.71	„ ..	2 Apr., „	16.46
„ ..	9 Jan., 1898	19.55	„ ..	31 Jan., 1913	24.72
„ ..	6 Mar., „	16.01	Harvey Creek ..	25 Mar., 1921	15.80
Croydon ..	29 Jan., 1908	15.00	Haughton Valley ..	26 Jan., 1896	18.10
Dungeness ..	16 Mar., 1893	22.17	Holmwood (Woodford) ..	2 Feb., 1893	16.19
Dunira ..	9 Jan., 1898	18.45	Howard ..	15 Jan., 1905	19.55
„ ..	6 Mar., „	15.95	Huntley ..	27 Dec., 1916	18.94
Fairymead Plantation (Bundaberg)	16 Jan., 1913	15.32	Innisfail (formerly Geraldton) ..	11 Feb., 1889	17.13
Flying Fish Point	7 Apr., 1912	16.06			

HEAVY RAINFALLS, QUEENSLAND—*continued.*

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Innisfail (formerly Geraldton) ..	6 Apr. 1894	16.02	Mourilyan ..	7 Apr., 1912	18.97
" " ..	24 Jan., 1900	15.22	" ..	31 Jan., 1913	15.05
" " ..	29 Dec., 1903	21.22	Mundoolun ..	21 " 1887	17.95
" " ..	2 Apr., 1911	15.00	Nambour ..	9 " 1898	21.00
" " ..	7 " 1912	20.50	" ..	27 Dec., 1909	16.80
" " ..	31 Jan., 1913	20.91	Netherdale ..	22 Jan., 1918	19.50
Kamerunga (Cairns) ..	2 Apr., 1911	21.00	Oxenford ..	14 Mar., 1908	15.65
" " ..	31 Jan., 1913	16.00	Palmwoods ..	10 Jan., 1898	15.85
Koumala ..	23 " 1918	22.31	" ..	25 Dec., 1909	17.75
" ..	24 " "	20.65	Pialba (Maryborough) ..	16 Jan., 1913	17.22
Kuranda (Cairns) ..	11 Feb., 1911	16.30	Plane Creek (Mackay) ..	26 Feb., "	27.73
" " ..	17 Mar., "	15.10	Port Douglas ..	10 Mar., 1904	16.34
" " ..	31 " "	18.60	" " ..	17 " 1911	16.10
" " ..	1 Apr., "	24.30	" " ..	1 Apr., "	31.53
" " ..	2 " "	28.80	Proserpine ..	23 Jan., 1918	18.17
" " ..	31 Jan., 1913	16.34	Ravenswood ..	24 Mar., 1890	17.00
Landsborough ..	2 Feb., 1893	15.15	Redcliffe ..	16 Feb., 1893	17.35
Low Island ..	10 Mar., 1904	15.07	Rosedale ..	16 Jan., 1913	18.90
" ..	1 Apr., 1911	15.30	Sarina ..	23 " 1918	22.60
Lyndon (via Brixton) ..	3 " 1917	17.00*	St. Lawrence ..	30 " 1896	15.00
Mackay ..	21 Jan., 1918	24.70†	The Hollow (Mackay) ..	23 Feb., 1888	15.12
" ..	22 " "	17.25‡	Thornborough ..	20 Apr., 1903	18.07
Sugar Experimental Farm, Mackay ..	21 " "	16.80	Townsville ..	24 Jan., 1892	19.20
" ..	22 " "	17.20	" ..	28 Dec., 1903	15.00
Macnade Mill ..	5 Feb., 1899	15.20	Victoria Mill ..	6 Jan., 1901	16.67
" ..	6 Jan., 1901	23.33	Woodlands (Yepp'n) ..	31 " 1893	23.07
" ..	4 Mar., 1915	22.00	Wootha ..	10 Feb., 1915	15.93
Mapleton ..	26 Dec., 1909	15.72	Yandina ..	1 " 1893	20.08
Mirani ..	12 Jan., 1901	16.59	" ..	9 Jan., 1898	19.25
Miriam Vale (B'berg) ..	17 " 1913	15.80	" ..	28 Dec., 1909	15.80
Mooloolah ..	13 Mar., 1892	21.53	Yarrabah ..	2 Apr., 1911	30.65
" ..	2 Feb., 1893	19.11	" ..	24 Jan., 1916	27.20
Mount Cuthbert ..	8 Jan., 1911	18.00	" ..	25 " "	18.60
Mount Molloy ..	31 Mar., "	20.00	Yeppoon ..	31 " 1893	20.05
" ..	1 Apr., "	20.00	" ..	8 " 1898	18.05
" ..	2 " "	20.00	" ..	8 Oct., 1914	21.70
Mourilyan ..	11 Feb., "	17.40			

HEAVY RAINFALLS, WESTERN AUSTRALIA, UP TO 1921, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Balla Balla ..	21 Mar., 1899	14.40	Exmouth Gulf ..	2 Feb., 1918	12.50
Bamboo Creek ..	22 " "	10.10	Fortescue ..	3 May, 1890	23.36
Boodarie ..	21 " "	14.53	Frazier Downs ..	3 Mar., 1916	12.25
Broome ..	6 Jan., 1917	14.00	Kerdiadary ..	7 Feb., 1901	12.00
Carlton ..	11 " 1906	10.64	Meda ..	2 Mar., 1916	10.55
Cossack ..	3 Apr., 1898	12.82	Millstream ..	5 " 1900	10.00
" ..	16 " 1900	13.23	Obagama ..	28 Feb., 1910	12.00
Croydon ..	3 Mar., 1903	12.00	" ..	24 Dec., 1920	13.02
Derby ..	29 Dec., 1898	13.09	Pilbara ..	2 Apr., 1898	14.04
" ..	7 Jan., 1917	16.47	Point Cloates ..	20 Jan., 1909	10.87

* Mr. Jas. Laidlaw, of Lyndon, states that this fell in 4 hours. † 37½ hours. ‡ 22½ hours.

HEAVY RAINFALLS, WESTERN AUSTRALIA—*continued.*

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Point Torment ..	17 Dec., 1906	11.86	Whim Creek ..	6 Mar., 1900	10.03
Port George IV. ..	17 Jan., 1915	11.24	" " ..	3 " 1903	10.44
Roebourne ..	3 Apr., 1898	11.44	Woodstock ..	21 " 1912	13.00
Roebuck Plains ..	5 Jan., 1917	14.01	Wyndham ..	27 Jan., 1890	11.60
" " ..	6 " "	22.36	" " ..	4 Mar., 1919	12.50
Tambray ..	6 Mar., 1900	10.00	Yardil Creek ..	3 Feb., 1918	10.00
" " ..	3 " 1903	10.47	Yeeda ..	2 Mar., 1916	10.70
Thangoo ..	17-19 Feb. '96	24.18	" " ..	6 Jan., 1917	10.20
" " ..	28 Dec., 1898	11.55	" " ..	7 " "	11.75
Whim Creek ..	3 Apr., "	29.41			

HEAVY RAINFALLS, NORTHERN TERRITORY, UP TO 1921, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Bonrook ..	24 Dec., 1915	10.60	Cosmopolitan Gold Mine ..	24 Dec., 1915	10.60
Borroloola ..	14 Mar., 1899	14.00	Darwin ..	7 " "	11.67
Brock's Creek ..	4 Jan., 1914	10.68	Lake Nash ..	21 Mar., 1901	10.25
" " ..	24 Dec., 1915	14.33	Pine Creek ..	8 Jan., 1897	10.35
Burrundie ..	4 Jan., 1914	11.61			

HEAVY RAINFALLS, SOUTH AUSTRALIA, UP TO 1921, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Wilmington ..	28 Feb., 1921	3.97	Wilmington ..	1 Mar., 1921	7.12

HEAVY RAINFALLS, VICTORIA, UP TO 1921, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Balook ..	26 Sept., 1917	5.32	Mt. Buffalo ..	6 June, 1917	8.63
" " ..	27 " "	7.23	" " ..	7 " "	6.56
" " ..	28 " "	2.08			

HEAVY RAINFALLS, TASMANIA, UP TO 1921, INCLUSIVE.

Name of Town or Locality.	Date.	Amnt.	Name of Town or Locality.	Date.	Amnt.
		ins.			ins.
Gould's Country ..	8-10 Mar., '11	15.33	Mathinna ..	8-10 Mar., '11	15.79
Lottah ..	8-10 " "	18.10	The Springs ..	30-31 Jan., '16	10.75

10. Snowfall.—Light snow has been known to fall even as far north, occasionally, as latitude 31° S., and from the western to the eastern shores of the continent. During exceptional seasons it has fallen simultaneously over two-thirds of the State of New South Wales, and has extended at times along the whole of the Great Dividing Range, from its southern extremity in Victoria as far north as Toowoomba in Queensland. During the winter, snow covers the ground to a great extent on the Australian Alps for several months, where also the temperature falls below zero Fahrenheit during the night, and in the ravines around Kosciusko and similar localities the snow never entirely disappears.

The antarctic "V"-shaped disturbances are always associated with our most pronounced and extensive snowfalls. The depressions on such occasions are very steep in the vertical area, and the apexes are unusually sharp-pointed and protrude into very low latitudes, sometimes even to the tropics.

11. Hail.—Hail falls throughout Australia most frequently along the southern shores of the continent in the winter, and over south-eastern Australia during the summer months. The size of the hailstones generally increases with distance from the coast, a fact which lends strong support to the theory that hail is brought about by ascending currents. Rarely does a summer pass without some station experiencing a fall of stones exceeding in size an ordinary hen-egg, and many riddled sheets of light-gauge galvanised iron bear evidence of the weight and penetrating power of the stones.

Hail storms occur most frequently in Australia when the barometric readings indicate a flat and unstable condition of pressure. They are almost invariably associated with tornadoes or tornadic tendencies, and on the east coast the clouds from which the stones fall are generally of a remarkable sepia-coloured tint.

12. Barometric Pressures.—The mean annual barometric pressure (corrected to sea-level and standard gravity) in Australia varies from 29.80 inches on the north coast to 29.92 inches over the central and 30.03 inches in the southern parts of the continent. In January the mean pressure ranges from 29.70 inches in the northern and central areas to 29.95 inches in the southern. The July mean pressure ranges from 29.90 inches at Darwin to 30.12 inches at Alice Springs. Barometer readings, corrected to mean sea level and standard gravity, have, under anticyclonic conditions in the interior of the continent, ranged as high as 30.77 inches (at Kalgoorlie on the 28th July, 1901) and have fallen as low as 27.55 inches. This lowest record was registered at Mackay during a tropical hurricane on the 21st January, 1918. An almost equally abnormal reading of 27.88 inches was recorded at Innisfail during a similar storm on the 10th March, 1918. The mean annual fluctuations of barometric pressure for the capitals of Australia are shewn on page 67.

13. Wind.—Notes on the distinctive wind currents in Australia were given a preceding Year Books (see No. 6, page 83) and are here omitted to save space.

14. Cyclones and Storms.—The "elements" in Australia are ordinarily peaceful, and although severe cyclones have visited various parts, more especially coastal areas, such visitations are rare, and may be properly described as erratic.

During the winter months the southern shores of the continent are subject to cyclonic storms, evolved from the V-shaped depressions of the southern low-pressure belt. They are felt most severely over the south-western parts of Western Australia, to the south-east of South Australia, in Bass Straits, including the coast line of Victoria, and on the west coast of Tasmania. Apparently the more violent wind pressures from these cyclones are experienced in their northern half, that is, in that part of them which has a north-westerly to a south-westerly circulation.

Occasionally the north-east coast of Queensland is visited by hurricanes from the north-east tropics. During the first four months of the year these hurricanes appear to have their origin in the neighbourhood of the South Pacific Islands, their path being a parabolic curve of south-westerly direction. Only a small percentage, however, reach Australia, the majority recurving in their path to the east of New Caledonia.

Very severe cyclones, locally known as "Willy Willies," are peculiar to the north-west coast of Western Australia from the months of November to April inclusive. They apparently originate in the ocean, in the vicinity of Cambridge Gulf, and travel in a south-westerly direction with continually increasing force, displaying their greatest energy near Cossack and Onslow, between latitudes 20° and 22° South. The winds in these storms, like those from the north-east tropics, are very violent and destructive,

causing great havoc amongst the pearl-fishers. The greatest velocities are usually to be found in the south-eastern quadrant of the cyclones, with north-east to east winds. After leaving the north-west coast, these storms either travel southwards, following the coast-line, or cross the continent to the Great Australian Bight. When they take the latter course their track is marked by torrential rains, as much as 29.41 inches, for example, being recorded in 24 hours at Whim Creek from one such occurrence. Falls of 10 inches and over have frequently been recorded in the northern interior of Western Australia from similar storms.

Some further notes on severe cyclones and on "Southerly Bursters," a characteristic feature of the eastern part of Australia, will be found in previous issues of the Year Book (see No. 6, pp. 84, 85, 86).

15. Influences affecting Australian Climate.—Australian history does not cover a sufficient period, nor is the country sufficiently occupied, to ascertain whether or not the advance of settlement has materially affected the climate as a whole. Local changes therein, however, have taken place, a fact which suggests that settlement and the treatment of the land have a distinct effect on local conditions. For example, the mean temperature of Sydney shews a rise of two-tenths of a degree during the last twenty years, a change probably brought about by the great growth of residential and manufacturing buildings within the city and in the surrounding suburbs during that period. Again, low-lying lands on the north coast of New South Wales, that originally were seldom subject to frosts, have, with the denudation of the surrounding hills from forests, experienced annual visitations, the probable explanation being that, through the absence of trees, the cold air of the high lands now flows, unchecked and untempered, down the sides of the hills to the valleys and lower lands.

(i) *Influences of Forests on Climate.* As already indicated, forests doubtless exercise a great influence on local climate, and hence, to the extent that forestal undertakings will allow, the weather can be controlled by human agency. The direct action of forests is an equalising one; thus, especially in equatorial regions, and during the warmest portion of the year, they considerably reduce the mean temperature of the air. They also reduce the diurnal extremes of shade temperatures by altering the extent of radiating surface by evaporation, and by checking the movement of air. While decreasing evaporation from the ground, they increase the relative humidity. Vegetation greatly diminishes the rate of flow-off of rain and the washing away of surface soil. Thus, when a region is protected by trees, a steadier water supply is ensured, and the rainfall is better conserved. In regions of snowfall the supply of water to rivers is similarly regulated, and without this and the sheltering influence of ravines and "gullies," watercourses supplied mainly by melting snow would be subject to alternate periods of flooding and dryness. This is borne out in the inland rivers. Thus, the River Murray, which has never been known to run dry, derives its steadiness of flow mainly through the causes above indicated.

(ii) *Direct Influences of Forests on Rainfall.* Whether forests have a direct influence on rainfall is a debatable question, some authorities alleging that precipitation is undoubtedly induced by forests, while others contend the opposite.

Sufficient evidence exists, however, to establish that, even if the rainfall has not increased, the beneficial effect of forest lands in tempering the effects of the climate is more than sufficient to disclose the importance of their protection and extension.

It is the rapid rate of evaporation, induced by both hot and cold winds, which injures crops and makes life uncomfortable on the plains. Whether the forest aids in increasing precipitation there may be doubt, but it must be admitted that it does check the winds and the rapid evaporation due to them.

Trees as wind-breaks have been successfully planted in central parts of the United States, and there is no reason why similar experiments should not be successful in many parts of our treeless interior. The belts should be planted at right angles to the direction of the prevailing parching winds, and if not more than half a mile apart will afford shelter to the enclosed areas.

In previous issues some notes on observations made in other countries were added (see Year Book No. 6, pp. 86 and 95).

16. Comparison of Rainfalls and Temperatures.—For the purpose of comparison, the following lists of rainfalls and temperatures are given for various important cities throughout the world, for the site of the Federal capital, and for the capitals of the Australian States.

COMPARISONS OF RAINFALLS AND TEMPERATURES OF CITIES OF THE WORLD WITH THOSE OF AUSTRALIA.

Place.	Height above M.S.L.	Annual Rainfall.			Temperature.					
		Average.	Highest.	Lowest.	(a) Mean Summer.	(b) Mean Winter.	Highest on Record.	Lowest on Record.	Average Hottest Month.	Average Coldest Month.
	Ft.	Ins.	Ins.	Ins.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.	Fahr.
Amsterdam ..	6	27.29	40.59	17.60	63.2	36.8	90.0	4.1	64.4	35.4
Auckland ..	125	43.31	63.72	26.32	66.1	52.5	91.0	31.9	67.2	51.8
Athens ..	351	15.43	33.33	4.56	79.2	49.1	109.4	19.6	81.0	47.4
Bergen ..	72	77.09	111.53	44.49	56.8	34.2	88.5	4.8	57.9	33.6
Berlin ..	161	22.72	30.04	14.25	64.8	33.0	98.6	-13.0	66.0	31.8
Berne ..	1,877	36.30	58.23	24.69	62.2	30.1	91.4	-3.6	64.4	28.0
Bombay ..	37	71.15	114.89	33.41	83.5	75.1	100.0	55.9	84.8	74.2
Breslau ..	422	22.52	32.56	16.50	64.1	33.5	100.0	-23.4	65.5	29.3
Brussels ..	388	28.35	41.18	17.73	62.6	36.0	95.5	-4.4	63.7	34.5
Budapest ..	500	25.20	35.23	16.79	68.6	30.2	98.6	-5.1	70.4	28.2
Buenos Ayres ..	82	38.78	79.72	20.04	72.7	50.9	103.1	22.3	73.8	50.0
Calcutta ..	21	61.82	98.48	38.43	85.6	68.0	108.2	44.2	86.0	66.4
Capetown ..	40	25.50	36.72	17.71	68.1	54.7	102.0	34.0	68.8	53.9
Caracas ..	3,420	30.03	47.36	23.70	68.3	65.3	87.8	48.2	69.2	63.7
Chicago ..	323	33.23	45.86	24.52	70.0	26.1	103.0	-23.0	72.4	23.7
Christchurch ..	25	25.45	35.80	13.54	61.1	43.4	95.7	-21.3	61.6	42.4
Christiania ..	75	23.23	32.21	16.26	61.0	45.5	95.0	-21.1	62.6	23.9
Columbo ..	40	53.83	139.70	51.60	81.5	79.9	95.8	65.0	82.6	79.1
Constantinople ..	245	28.75	42.74	14.78	74.0	43.5	103.6	1.0	75.7	42.0
Copenhagen ..	10	20.79	25.83	15.47	60.4	33.3	85.5	-3.3	61.9	32.4
Dresden ..	115	26.80	33.49	17.72	62.9	32.4	93.4	-15.3	64.4	31.6
Dublin ..	47	27.68	35.58	16.60	69.4	42.0	87.2	13.3	80.5	41.7
Dunedin ..	300	37.06	53.90	22.15	67.3	43.1	94.0	23.0	57.9	42.0
Durban ..	260	40.79	71.27	27.24	75.6	64.4	110.6	41.1	76.7	63.8
Edinburgh ..	441	25.21	32.05	16.44	55.8	38.8	87.7	5.0	57.2	38.3
Geneva ..	1,328	33.48	46.89	21.14	64.4	33.7	91.0	6.2	66.2	32.2
Genoa ..	157	51.29	108.22	28.21	73.8	46.8	94.5	16.7	75.4	45.5
Glasgow ..	184	38.49	56.18	29.05	52.7	41.0	84.9	6.6	58.0	38.4
Greenwich ..	149	23.50	35.54	16.38	62.0	39.5	100.0	6.9	63.5	38.5
Hong Kong ..	109	84.28	119.72	45.84	86.2	64.8	97.0	32.0	86.7	62.9
Johannesburg ..	5,750	31.63	50.00	21.66	65.4	54.4	94.0	23.3	68.2	48.9
Leipzig ..	384	24.69	31.37	17.10	63.1	31.5	97.3	-14.8	64.8	30.6
Lisbon ..	312	20.18	52.79	17.32	69.6	51.3	94.1	32.5	70.2	49.3
London (Kew) ..	18	23.80	38.20	16.64	61.2	39.8	94.0	9.4	62.7	38.9
Madras ..	22	49.85	88.41	18.45	89.0	76.8	113.0	57.5	89.9	76.1
Madrid ..	2,149	16.23	27.48	9.13	73.0	41.2	107.1	10.5	75.7	39.7
Marseilles ..	246	22.24	43.03	12.28	70.5	45.3	100.4	11.7	72.3	44.6
Moscow ..	526	18.94	29.28	12.07	63.4	14.7	99.5	-44.5	66.1	11.9
Naples ..	489	34.00	56.58	21.75	73.6	48.0	99.1	23.9	75.4	46.8
New York ..	314	44.63	58.68	33.17	71.4	31.8	102.0	-13.0	73.5	30.2
Ottawa ..	236	33.40	53.79	25.63	67.2	14.1	98.0	-33.0	69.7	12.0
Paris ..	164	22.64	29.57	16.46	63.5	37.2	101.1	-14.1	64.9	36.1
Pekin ..	143	24.40	36.00	18.00	77.7	26.6	114.0	-5.0	79.2	23.6
Petrograd ..	16	21.30	29.52	13.75	61.1	17.4	97.0	-38.2	63.7	15.2
Quebec ..	296	40.50	53.79	32.12	63.5	12.4	96.0	-34.0	66.3	10.1
Rome ..	166	32.57	57.89	12.72	74.3	46.0	104.2	17.2	76.1	44.6
San Francisco ..	155	22.27	38.82	9.00	58.8	50.5	101.0	29.0	59.3	49.5
Shanghai ..	21	45.00	62.52	27.92	78.0	41.1	102.9	10.2	80.4	37.8
Singapore ..	8	91.99	158.68	32.71	81.2	78.6	94.2	63.4	81.5	78.3
Stockholm ..	144	19.09	28.27	11.81	59.5	27.3	96.8	-25.6	61.9	26.4
Tokio ..	65	61.45	86.37	45.72	74.8	39.2	97.9	17.2	77.7	37.5
Trieste ..	85	42.94	63.14	26.57	73.9	41.3	99.5	14.0	76.3	39.9
Vienna ..	663	24.50	33.90	16.50	65.7	30.4	97.7	-8.0	67.1	28.0
Vladivostok ..	55	19.54	33.60	9.39	63.9	11.0	95.7	-21.8	69.4	6.1
Washington ..	112	43.50	61.33	30.85	74.7	34.5	106.0	-15.0	76.8	32.9
Wellington (N.Z.) ..	110	49.70	67.68	30.02	61.7	48.4	88.0	30.0	62.4	47.5
Zürich ..	1,542	45.15	78.27	29.02	63.3	31.3	94.1	-0.8	65.1	29.5

FEDERAL CAPITAL SITE.

Canberra (Dist.)	2,000	22.49	41.29	10.45	(a) 68.4	(b) 44.2	102.6	18.0	63.8	43.4
Queanbeyan	2,900									

THE STATE CAPITALS.

					(a)	(b)				
Perth ..	197	33.91	46.73	20.21	73.1	56.0	108.4	34.2	74.2	55.2
Adelaide ..	140	21.05	30.87	11.39	73.1	53.1	116.3	32.0	74.1	51.7
Brisbane ..	137	45.65	88.26	16.17	76.6	59.7	108.9	36.1	77.0	58.4
Sydney ..	133	48.04	82.76	21.49	71.0	54.0	108.5	35.9	71.7	52.6
Melbourne ..	115	25.66	44.25	15.61	66.6	50.0	111.2	27.0	67.5	48.6
Hobart ..	177	23.59	43.39	13.43	61.7	46.8	105.2	27.0	62.4	45.5

(a) Mean of the three hottest months.

(b) Mean of the three coldest months.

17. **Climatological Tables.**—The means, averages, extremes, totals, etc., for a number of climatological elements have been determined from long series of observations at the Australian capitals up to and including the year 1921. These are given in the following tables:—

CLIMATOLOGICAL DATA FOR PERTH, W.A.

LAT. 31° 57' S., LONG. 115° 50' E. HEIGHT ABOVE M.S.L. 197 Ft.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mm. Sea level and Standard Gravity from 9 a.m. and 3 p.m. readings.	Wind.				Mean Amount of Evaporation. (Inches)	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. 3 p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	37	24	24	24	24	23	24	25	25
January ..	29.906	797 21/100	0.69	11,266	S S E	10.44	1.8	2.7	14.1
February ..	29.924	650 6/03	0.63	9,853	S S E	8.60	1.5	2.8	11.5
March ..	29.988	651 6/13	0.54	10,004	S S E	7.64	1.4	3.2	11.9
April ..	30.076	955 25/00	0.41	8,443	S E	4.74	1.3	4.1	8.0
May ..	30.076	768 5/12	0.35	8,035	E N E	2.72	2.3	5.3	5.1
June ..	30.058	861 27/10	0.37	7,972	N	1.73	2.3	5.9	3.1
July ..	30.091	949 11/99	0.39	8,444	N	1.71	2.3	5.4	4.9
August ..	30.084	966 15/03	0.42	8,854	W	2.36	1.7	5.3	4.8
September ..	30.060	864 11/05	0.47	9,033	S W	3.30	1.4	4.9	5.6
October ..	30.031	809 6/16	0.53	8,991	S S W	5.22	1.1	4.9	5.8
November ..	29.988	777 18/97	0.61	10,253	S	7.65	1.3	3.8	7.9
December ..	29.928	672 31/98	0.65	10,936	S	9.84	1.6	3.0	12.2
Year { Totals ..	—	—	—	112,984	—	65.95	20.0	—	94.9
Averages ..	30.018	—	0.50	—	S	—	—	4.3	—
Extremes ..	—	966 15/8/03	—	—	—	—	—	—	—

TEMPERATURE.

Month.	Mean Temperature (Fahr.).			Extreme Shade Temperature (Fahr.).		Greatest Range.	Extreme Temperature (Fahr.).		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean.	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	25	25	25	25	25	25	24	23	24
January ..	84.6	63.4	74.0	108.4 28/21	50.6 25/01	57.8	177.3 22/11	40.4 1/21	321.0
February ..	84.9	63.5	74.2	107.3 12/15	47.7 1/02	59.6	169.0 4/09	39.8 1/13	273.0
March ..	81.3	60.9	71.1	106.1 6/14	45.8 5/03	60.3	167.0 19/18	36.7 8/03	269.4
April ..	75.9	57.1	66.5	99.7 9/10	39.3 20/14	60.4	157.0 8/21	31.0 20/14	219.2
May ..	68.6	52.5	60.6	90.4 2/07	34.3 11/14	56.1	141.0 2/21	25.3 11/14	177.2
June ..	63.9	40.6	56.8	81.7 2/14	36.3 29/14	45.4	135.5 9/14	29.0 20/16	143.4
July ..	62.7	47.7	55.2	76.4 21/21	34.2 7/16	42.2	133.2 13/15	25.1 30/20	168.0
August ..	63.8	48.1	56.0	81.0 12/14	35.3 31/03	45.7	145.1 29/21	27.9 10/11	186.5
September ..	66.1	50.2	58.2	90.9 30/18	38.9 17/13	52.0	153.6 29/18	29.2 21/16	203.4
October ..	69.3	52.7	61.0	93.4 17/06	40.9 4/17	52.5	164.0 29/14	30.5 4/17	236.7
November ..	75.4	56.6	66.0	104.6 24/13	42.0 1/04	62.6	166.6 23/15	35.5 6/10	289.4
December ..	80.8	60.6	70.7	107.9 20/04	48.0 2/10	59.9	168.7 25/15	39.1 2/10	325.2
Year { Averages ..	73.1	55.2	64.2	—	—	—	—	—	2812.4a
Extremes ..	—	—	—	108.4 28/1/21	34.2 7/7/16	74.2	177.3 22/1/14	25.1 30/7/20	—

(a) Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%)			Rainfall (inches).					Dew (inches).	
	Mean 9 a.m.	Highest	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.	Mean No. Days Dew.
No. of yrs. over which observation extends	25	25	25	46	46	46	46	46	—	46
January ..	52	61	42	0.33	3	2.17 1879	nil (a)	1.74 28/79	—	2.5
February ..	54	65	46	0.48	2	2.30 1883	nil (a)	1.63 26/15	—	2.9
March ..	57	66	46	0.75	4	4.50 1896	nil (a)	1.53 17/76	—	5.7
April ..	64	72	51	1.58	7	4.97 1882	nil 1920	2.62 30/04	—	9.0
May ..	72	81	61	4.88	14	12.13 1879	0.98 1903	2.80 20/79	—	12.2
June ..	78	83	72	6.86	17	12.11 1890	2.16 1877	3.90 10/20	—	11.7
July ..	78	84	72	6.52	17	10.90 1902	2.42 1876	3.00 4/91	—	13.1
August ..	74	79	67	5.69	18	10.33 1882	0.46 1902	2.79 7/03	—	11.2
September ..	68	75	58	3.35	14	7.72 1903	0.62 1914	1.73 23/07	—	9.2
October ..	62	75	54	2.12	12	7.87 1890	0.49 1892	1.88 15/10	—	5.4
November ..	55	63	56	0.77	6	2.12 1890	nil 1891	1.11 30/03	—	3.9
December ..	52	62	44	0.58	4	3.05 1888	nil 1886	1.72 1/88	—	3.0
Year { Totals ..	—	—	—	33.91	118	—	—	—	—	89.8
Averages ..	64	—	—	—	—	—	—	—	—	—
Extremes ..	—	84	42	—	—	12.13 5/79	nil (b)	3.90 10/6/20	—	—

(a) Various years.

(b) January, February, March, November, and December, various years.

CLIMATOLOGICAL DATA FOR ADELAIDE, S.A.

LAT. 34° 56' S., LONG. 138° 35' E. HEIGHT ABOVE M.S.L. 140 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. M. Sea level and Stan- dard Gravity from 9 a.m. and 3 p.m. readings.	Wind.				Mean Amount of Evaporation (inches).	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. 3 p.m. & 9 p.m.	No. of Clear Days.	
		Greatest Number of Miles in One Day.	Mean Hourly Pres- sure. (lbs.)	Total Miles.	Prevailing Direction.					
No. of yrs. over which observation extends	65	44	44	44	44	52	50	54	50	
January	29.918	758	19/99	0.34	7,893	S	9.00	2.3	3.4	8.3
February	29.953	691	22/96	0.30	6,783	S	7.34	2.0	3.4	7.1
March	30.038	628	9/12	0.25	6,735	S	5.81	2.2	3.9	6.9
April	30.121	773	10/96	0.22	6,137	S x W	3.41	1.6	5.0	4.0
May	30.124	760	9/80	0.21	6,210	N x E	2.03	1.7	5.7	1.9
June	30.005	750	12/78	0.25	6,623	N	1.24	2.1	6.1	1.6
July	30.129	674	25/82	0.25	6,777	N	1.30	1.6	5.8	1.7
August	30.098	773	31/97	0.28	7,182	N N W	1.88	2.2	5.6	2.5
September ..	30.040	720	2/87	0.31	7,348	W	2.85	2.4	5.2	3.2
October	30.000	768	28/98	0.34	7,896	S W x W	4.76	3.4	4.9	4.0
November ..	29.974	677	2/04	0.33	7,556	S S W	6.51	3.6	4.6	5.1
December ..	29.920	675	12/91	0.34	7,928	S S W	8.43	2.7	3.8	7.4
Year { Totals	—	—	—	—	—	—	54.56	27.8	—	53.7
Averages ..	30.034	—	—	0.28	7,089	S W x S	—	—	4.8	—
Extremes ..	—	773(a)	—	—	—	—	—	—	—	—

(a) 10/4/96 and 31/8/97.

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature (Fahr.).			Extreme Shade Temperature (Fahr.).		Extreme Range.	Extreme Temperature (Fahr.).		Mean Hours of Sunshine.				
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.					
No. of yrs. over which observation extends	65	65	65	65	65	65	44	61	40				
January	86.5	61.7	74.1	116.3	26/58	45.1	21/84	71.2	180.0	18/82	36.5	14/79	311.2
February	86.2	62.1	74.1	113.6	12/99	45.5	23/18	68.1	170.5	10/00	36.7	(c)	263.9
March	80.8	58.9	69.8	108.0	12/61	44.8	-/57	63.2	174.0	17/83	33.8	27/80	238.9
April	73.2	54.5	63.9	98.0	10/66	39.6	15/59	58.4	155.0	1/83	30.2	16/17	178.2
May	65.6	50.2	57.9	89.5	4/21	36.9	(a)	52.6	148.2	12/79	25.9	10/91	148.5
June	60.3	46.7	53.5	76.0	23/65	32.5	27/76	43.5	138.8	18/79	22.9	12/13	121.4
July	58.8	44.5	51.7	74.0	11/06	32.0	24/08	42.0	134.5	26/90	23.3	25/11	138.4
August	62.0	45.9	54.0	85.0	31/11	32.3	17/59	52.7	140.0	31/92	23.5	7/88	163.3
September ..	66.3	47.9	57.1	90.7	23/82	32.7	4/58	53.0	160.5	23/82	26.2	15/08	184.3
October	72.5	51.4	62.0	102.8	30/19	36.0	-/57	66.8	162.0	30/21	27.8	2/18	228.0
November ..	78.6	55.4	67.0	113.5	21/65	40.8	2/09	72.7	166.9	20/78	31.5	2/09	261.2
December ..	83.4	59.0	71.2	114.2	14/76	43.0	(b)	71.2	175.7	7/99	32.5	4/84	304.6
Year {Averages ..	72.8	53.2	63.0	—	—	—	—	—	—	—	—	—	2,541.9d
{Extremes ..	—	—	—	116.3	—	32.0	—	84.3	180.0	—	22.9	—	—
				26/1/58		24/7/08			18/1/82		12/6/13		

(a) 26/1895 and 24/1904. (b) 16/1861 and 4/1903. (c) 24/78 and 23/18. (d) Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%)			Rainfall (Inches).					Dew (Inches).			
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day	Mean Amount of Dew.	Mean No. Days Dew.		
No. of yrs. over which observation extends	54	54	54	83	83	83	83	83	—	50		
January ..	38	59	30	0.72	4	4.00	1850	nil (a)	2.30	2/89	—	4.2
February ..	41	56	31	0.65	4	2.89	1919	nil (b)	2.24	14/13	—	5.7
March ..	47	58	36	1.06	6	4.60	1878	nil (c)	3.50	5/78	—	11.1
April ..	56	72	44	1.78	9	6.78	1853	0.06 1910	3.15	5/60	—	14.1
May ..	68	76	49	2.74	13	7.75	1875	0.20 1891	2.75	1/53	—	15.9
June ..	77	84	69	3.11	16	8.58	1916	0.42 1886	2.11	1/20	—	15.7
July ..	76	87	68	2.63	16	5.38	1865	0.37 1899	1.75	10/65	—	17.2
August ..	69	77	54	2.51	16	6.24	1852	0.35 1914	2.23	19/51	—	16.4
September ..	61	72	44	1.99	14	4.64	1840	0.45 1896	1.42	(d)	—	15.6
October ..	51	67	29	1.73	11	3.83	1870	0.17 1914	2.24	16/08	—	12.6
November ..	43	57	34	1.17	8	3.55	1851	0.04 1885	1.88	28/58	—	7.2
December ..	39	50	33	0.96	6	3.98	1861	nil 1904	2.42	23/13	—	4.8
Year { Totals ..	—	—	—	21.05	123	—	—	—	—	—	—	140.5
{ Averages ..	55	—	—	—	—	—	—	—	—	—	—	—
{ Extremes ..	—	87	29	—	—	8.58	6/16	nil (e)	3.50	5/3/78	—	—

(a) 1848, 1849, 1873, and 1906. (b) 1848, 1860, &c. (c) 1859, &c. (d) 25/93 and 12/17.

(e) January, February, March, and December, various years.

CLIMATOLOGICAL DATA FOR BRISBANE, QUEENSLAND.

LAT. 27° 28' S., LONG. 153° 2' E. HEIGHT ABOVE M.S.L. 137 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. M. Sea level and Standard Gravity from 9 a.m. and 3 p.m. readings.	Wind.				Mean Amount of Evaporation (inches).	No. of Days Lightning.	Mean Amount of Clouds 9 a.m. 3 p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	35	11	11	11	35	13	35	30	13
January ..	29.876	315 24/14	0.10	4,222	E	6.516	5.3	5.8	2.8
February ..	29.904	340 10/15	0.13	4,419	S E	5.291	5.1	5.7	2.1
March ..	29.958	305 29/16	0.09	4,086	S E & S	4.726	4.4	5.3	4.5
April ..	30.050	335 6/21	0.08	3,606	S	3.644	3.2	4.5	8.1
May ..	30.090	245 29/19	0.07	3,474	S	2.748	3.2	4.4	8.2
June ..	30.066	307 23/16	0.07	3,364	S	—	2.1	4.2	8.2
July ..	30.072	291 31/21	0.07	3,470	S W & S	—	2.5	3.7	11.8
August ..	30.097	284 6/20	0.08	3,823	S	—	3.5	3.6	11.5
September ..	30.040	269 19/21	0.07	3,532	S	3.689	5.7	3.6	11.8
October ..	30.006	325 25/18	0.09	4,048	N E	5.166	6.9	4.1	7.8
November ..	29.958	272 22/21	0.10	4,185	N E & N	5.922	8.1	4.8	6.1
December ..	29.890	295 21/13	0.11	4,561	N E	6,579	8.4	5.2	3.4
Year { Totals ..	—	—	—	—	S to E and N E	44.281	58.4	—	86.3
Averages ..	30.001	—	0.09	3,899	—	—	—	4.6	—
Extremes ..	—	340 10/2/15	—	—	—	—	—	—	—

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature (Fahr.).			Extreme Shade Temperature (Fahr.).		Extreme Range.	Extreme Temperature (Fahr.).		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean.	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	35	35	35	35	35	35	35	35	13
January ..	85.3	68.8	77.0	108.9 14/02	58.8 4/93	50.1	166.4 10/17	49.9 4/93	215.6
February ..	84.5	68.2	76.4	101.9 11/04	58.7 (a)	43.2	165.2 6/10	49.3 9/89	203.1
March ..	82.3	66.3	74.3	99.4 5/19	52.4 29/13	47.0	160.0 1/87	45.4 29/13	198.9
April ..	79.0	61.6	70.3	95.2 (b)	48.6 17/00	46.6	153.8 11/16	37.0 17/00	202.8
May ..	73.5	55.3	64.4	88.8 18/97	41.3 24/99	47.5	147.0 1/10	29.8 8/97	188.5
June ..	69.4	50.9	60.2	88.9 19/18	36.3 29/08	52.6	136.0 3/18	25.4 23/88	160.1
July ..	68.4	48.4	58.4	83.4 28/98	36.1 (c)	47.3	146.1 20/15	23.9 11/90	191.0
August ..	71.1	49.2	60.4	87.5 28/07	37.4 6/87	50.1	141.9 20/17	27.1 9/99	218.1
September ..	75.8	54.8	65.3	95.2 16/12	40.7 1/96	54.5	155.5 26/03	30.4 1/89	227.9
October ..	79.8	59.8	69.8	101.4 18/93	43.3 3/99	58.1	157.4 31/18	34.9 8/89	246.9
November ..	83.0	64.1	73.6	106.1 18/13	48.5 2/05	57.6	162.3 7/89	38.8 1/05	237.4
December ..	85.3	67.5	76.4	105.9 26/93	56.4 13/12	49.5	160.4 7/14	49.1 3/94	242.5
Year { Averages ..	78.1	59.6	68.9	—	—	72.8	166.4	23.9	2,532.8d
Extremes ..	—	—	—	108.9 14/1/02	36.1 (c)	—	10/1/17	11/7/90	—

(a) 10 and 11/04.

(b) 9/96 and 5/03.

(c) 12/94 and 2/96.

(d) Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%).			Rainfall (inches).				Dew (inches)	
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days of Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew. Days Dew.
No. of yrs. over which observation extends	35	35	35	70	62	70	70	—	35
January ..	67	79	53	6.46	14	27.72 1895	0.32 1919	18.31 21/87	4.9
February ..	70	82	55	6.33	14	40.39 1893	0.58 1849	8.36 16/93	5.4
March ..	73	85	56	5.89	15	34.04 1870	nil 1849	11.18 14/08	8.4
April ..	73	80	60	3.64	12	15.28 1867	0.04 1897	4.47 13/16	11.8
May ..	74	85	64	2.89	10	13.85 1876	nil 1846	5.62 9/79	12.3
June ..	74	84	67	2.65	8	14.03 1873	nil 1847	6.01 9/93	10.2
July ..	75	81	61	2.28	8	8.46 1889	nil 1841	3.54 (b)	11.7
August ..	70	80	61	2.17	8	14.67 1879	nil (a)	4.89 12/87	9.5
September ..	65	76	47	2.08	8	5.43 1886	0.10 1907	2.46 2/94	9.2
October ..	61	72	49	2.62	9	9.99 1882	0.14 1900	1.95 20/89	7.5
November ..	60	72	46	3.67	10	12.40 1917	nil 1842	4.46 16/86	4.4
December ..	63	68	52	4.97	12	13.99 1910	0.35 1865	6.60 28/71	3.7
Year { Totals ..	—	—	—	45.65	128	—	—	—	98.5
Averages ..	69	—	—	—	—	40.39	nil	18.31	—
Extremes ..	—	85	46	—	—	2/1893	(c)	21/1/87	—

(a) 1862, 1869, 1880.

(b) 15/76, 16/89.

(c) March, May, June, July, August, and November, various years.

CLIMATOLOGICAL DATA FOR SYDNEY, N.S.W.

LAT. 33° 52' S., LONG. 151° 12' E. HEIGHT ABOVE M.S.L. 133 Ft.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. Mm. Sea Level and Standard Gravity from 24 hourly readings.	Wind.				Mean Amount of Evaporation (inches).	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. to 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	63	55	55	55	55	42	62	63	58
January ..	29.903	721 1/71	0.36	8,130	N E	5.238	4.7	5.8	2.1
February ..	29.946	871 12/60	0.30	6,965	N E	4.099	4.5	6.0	1.4
March ..	30.012	543 20/70	0.24	6,760	N E	3.519	4.1	5.6	2.1
April ..	30.074	803 6/82	0.19	6,099	N E	2.505	3.9	5.1	3.0
May ..	30.082	758 6/98	0.24	6,324	W	1.729	3.3	4.8	3.7
June ..	30.058	712 7/00	0.24	7,909	W	1.402	2.2	4.8	3.9
July ..	30.075	930 17/79	0.30	7,090	W	1.502	2.4	4.4	5.2
August ..	30.070	756 22/72	0.24	6,839	W	1.858	3.2	4.0	5.2
September ..	30.009	984 6/74	0.30	7,098	W	2.640	4.0	4.3	2.7
October ..	29.972	926 4/72	0.30	7,731	N E	3.730	4.9	5.0	1.8
November ..	29.940	720 13/68	0.36	7,582	N E	4.516	5.5	5.6	2.1
December ..	29.882	938 3/84	0.36	8,016	N E	5.294	5.7	5.7	2.1
Year { Totals ..	—	—	—	—	—	—	—	—	—
Averages ..	30.002	—	0.29	7,236	N E	38.086	48.2	5.1	37.1
Extremes ..	—	964 6/9/74	—	—	—	—	—	—	—

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature (Fahr.).			Extreme Shade Temperature (Fahr.).		Extreme Range.	Extreme Temperature (Fahr.).		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	63	63	63	63	63	63	63	63	11
January ..	78.4	64.9	71.7	108.5 13/96	51.2 14/65	57.3	164.3 26/15	44.2 18/97	199.1
February ..	77.5	64.9	71.2	101.0 19/66	49.3 28/63	51.7	162.1 16/98	43.4 25/91	177.9
March ..	75.6	62.9	69.2	102.6 3/69	48.8 14/86	53.8	153.9 1/16	39.9 17/13	176.6
April ..	71.1	58.1	64.6	89.0 4/09	44.6 27/64	44.4	144.1 10/77	33.3 24/09	145.6
May ..	65.2	52.1	58.7	86.0 1/19	40.2 22/59	45.8	129.7 1/96	29.3 25/17	131.0
June ..	60.8	48.2	54.5	75.5 23/19	38.0 5/20	37.5	123.0 14/78	28.1 24/11	118.1
July ..	59.3	45.9	52.6	74.9 17/71	35.9 12/90	39.0	124.7 19/77	24.0 4/93	128.5
August ..	62.5	47.6	55.0	82.0 31/84	36.8 3/72	45.2	149.0 30/78	26.1 4/09	179.4
September ..	66.8	51.5	59.2	92.3 27/19	40.8 18/64	51.5	142.2 12/78	30.1 17/05	184.2
October ..	71.1	55.8	63.4	99.7 19/98	42.3 3/18	57.4	151.9 (a)	32.7 9/05	198.4
November ..	74.5	59.7	67.1	102.7 21/78	45.8 1/05	56.9	158.5 28/99	36.0 6/06	194.8
December ..	77.3	62.9	70.1	107.5 21/04	49.3 2/59	58.2	164.5 27/89	41.5 6/09	198.6
Year { Averages ..	70.0	56.2	63.1	—	—	—	—	—	2,027.2b
Extremes ..	—	—	—	108.5 13/1/96	35.9 12/7/90	72.6	164.5 27/12/89	24.0 4/7/93	—

(a) 30 and 31/14.

(b) Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%).			Rainfall (inches).				Dew (inches).	
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.
No. of yrs. over which observation extends	63	63	63	63	63	63	63	63	62
January ..	69	78	58	3.61	13.9	15.26	1911	0.42	1888
February ..	72	81	59	4.45	14.0	18.56	1873	0.34	1902
March ..	74	85	62	5.03	15.0	18.70	1870	0.42	1876
April ..	77	87	63	5.39	13.4	24.49	1861	0.06	1868
May ..	76	90	66	5.16	15.1	23.03	1919	0.18	1860
June ..	78	89	68	4.90	12.6	16.30	1885	0.19	1904
July ..	77	88	65	4.88	12.5	13.21	1900	0.12	1862
August ..	73	84	56	3.03	11.3	14.89	1899	0.04	1885
September ..	69	79	49	2.89	12.0	14.05	1879	0.08	1882
October ..	67	77	46	2.95	12.8	11.14	1916	0.21	1867
November ..	66	79	42	2.88	12.5	9.88	1865	0.07	1915
December ..	67	77	52	2.87	13.0	15.82	1920	0.23	1913
Year { Totals ..	—	—	—	48.04	157.9	—	—	—	—
Averages ..	72	—	—	—	—	—	—	—	—
Extremes ..	—	90	42	—	—	24.49 April/81	0.04 Aug./85	8.90 25/2/73	—

CLIMATOLOGICAL DATA FOR MELBOURNE, VICTORIA.

LAT. 37° 49' S., LONG. 144° 58' E. HEIGHT ABOVE M.S.L. 115 FT.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 32° F. M.S. Sea level and Standard Gravity from 9 a.m., 3 & 9 p.m. readings.	Wind.				Mean Amount of Evaporation (Inches.)	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. 3 p.m. & 9 p.m.	No. of Clear Days.
		Greatest Number of Miles in One Day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	64	49	49	49	49	49	14	64	14
January ..	29.915	583 10/97	0.29	7,345	S W, S E	6.42	1.8	5.0	7.8
February ..	29.963	566 8/68	0.28	6,441	S W, S E	5.06	2.4	5.0	7.2
March ..	30.033	677 9/31	0.22	6,398	S W, S E	3.95	1.6	5.5	5.6
April ..	30.104	597 7/68	0.19	5,719	S W, N W	2.36	0.9	5.9	4.4
May ..	30.105	693 12/65	0.19	5,958	N W, N E	1.46	0.6	6.5	3.4
June ..	30.074	761 13/76	0.24	6,461	N W, N E	1.10	0.9	6.7	2.2
July ..	30.094	755 8/74	0.23	6,482	N W, N E	1.06	0.6	6.3	3.4
August ..	30.065	637 14/75	0.26	6,882	N W, N E	1.48	1.0	6.3	2.9
September ..	29.999	617 11/72	0.29	7,108	N W, S W	2.31	1.8	6.1	3.6
October ..	29.969	899 5/66	0.29	7,377	S W, N W	3.34	1.9	5.9	4.4
November ..	29.950	734 13/66	0.29	7,083	S W, S E	4.54	2.3	5.9	3.5
December ..	29.898	655 1/75	0.30	7,503	S W, S E	5.75	2.1	5.5	4.4
Year { Totals ..	—	—	—	—	—	38.83	17.9	—	52.8
Year { Averages ..	30.014	—	0.26	6,730	S W, N W	—	—	5.9	—
Year { Extremes ..	—	899 5/10/66	—	—	—	—	—	—	—

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature (Fahr.)			Extreme Shade Temperature (Fahr.)		Extreme Range.	Extreme Temperature (Fahr.)		Mean Hours of Sunshine.
	Mean Max.	Mean Min.	Mean.	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	66	66	66	66	66	66	62	62	40
January ..	78.2	56.8	67.5	111.2 14/62	42.0 28/85	69.2	178.5 14/62	30.2 28/85	269.5
February ..	78.0	57.1	67.5	109.5 7/01	40.3 9/65	69.2	167.5 15/70	30.9 6/91	246.9
March ..	74.4	54.6	64.5	105.5 2/93	37.1 17/84	68.4	164.5 1/68	28.9 (a)	207.9
April ..	68.3	50.7	59.5	94.0 6/65	34.8 24/88	59.2	152.0 8/61	25.0 23/87	164.3
May ..	61.4	46.7	54.1	83.7 7/05	29.9 29/16	53.8	142.6 2/59	21.1 26/16	142.7
June ..	56.8	44.1	50.4	72.2 1/07	28.0 11/66	44.2	129.0 11/61	20.4 17/95	112.5
July ..	55.3	41.7	48.6	68.4 24/78	27.0 21/69	41.4	125.8 27/80	20.5 12/03	106.4
August ..	58.7	43.4	51.1	77.0 20/85	28.3 11/63	48.7	137.4 29/69	21.3 14/02	156.2
September ..	62.6	45.6	54.1	85.0 19/19	31.1 16/08	53.9	142.1 20/67	22.8 8/18	174.6
October ..	67.0	48.2	57.6	98.4 24/14	32.1 3/71	66.3	154.3 28/68	24.8 22/18	209.5
November ..	71.4	51.2	61.3	105.7 27/94	36.5 2/66	69.2	159.6 29/65	24.6 2/96	246.5
December ..	78.4	54.2	64.3	110.7 15/76	40.0 4/70	70.7	170.3 20/69	33.2 1/04	250.6
Year { Averages ..	67.6	49.5	58.4	—	—	—	—	—	2296.96
Year { Extremes ..	—	—	—	111.2 14/1/62	27.0 21/7/69	84.2	178.5 14/1/62	20.4 17/6/95	—

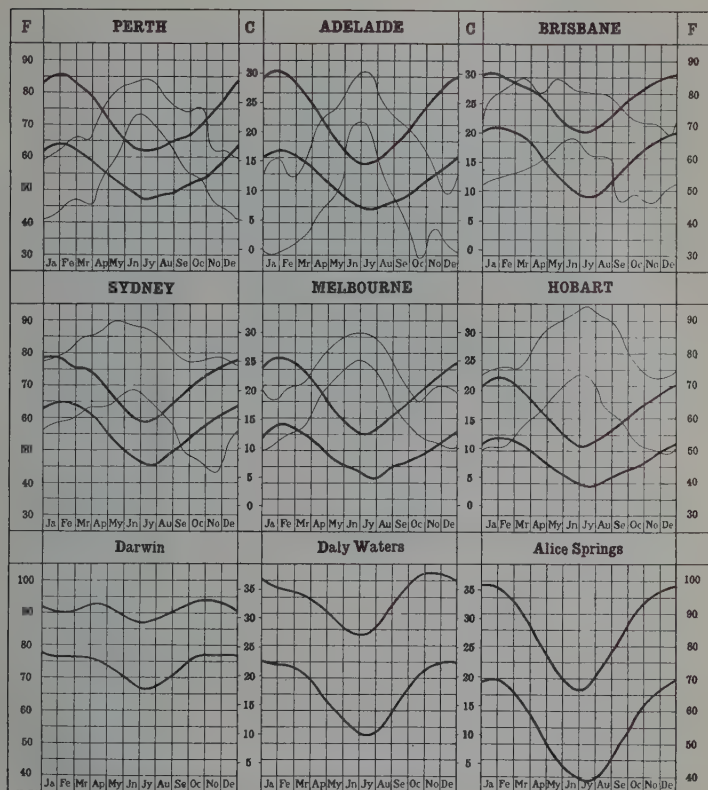
(a) 17/1884 and 20/1897.

(b) Total for year.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%)			Rainfall (Inches.)				Dew (Inches.)	
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean Amount of Dew.
No. of yrs. over which observation extends	14	14	14	66	66	66	66	66	14
January ..	55	65	50	1.88	7	5.68	1904	0.04 1878	2.97 9/97
February ..	61	69	53	1.70	7	6.24	1904	-0.03 1870	3.37 18/19
March ..	64	71	57	2.23	9	7.50	1911	0.18 1859	3.55 5/19
April ..	71	78	66	2.23	11	6.71	1901	0.33 1908	2.28 22/01
May ..	79	84	73	2.19	13	4.31	1862	0.45 1901	1.85 7/91
June ..	82	87	77	2.10	14	4.51	1859	0.73 1877	1.74 21/04
July ..	82	86	76	1.83	14	7.02	1891	0.57 1902	2.71 12/91
August ..	76	82	70	1.85	14	3.59	1909	0.48 1903	1.87 17/81
September ..	68	76	60	2.47	14	7.93	1916	0.52 1907	2.62 12/80
October ..	62	67	56	2.62	13	7.61	1869	0.29 1914	3.00 17/69
November ..	59	69	52	2.24	11	6.71	1916	0.25 1895	2.57 16/76
December ..	57	69	51	2.32	9	7.18	1863	0.11 1904	2.62 23/07
Year { Totals ..	—	—	—	25.66	136	—	—	—	—
Year { Averages ..	68	—	—	—	—	—	—	—	—
Year { Extremes ..	—	87	50	—	—	7.93 9/16	0.03 2/70	3.55 5/3/19	—

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF NORMAL MAXIMUM AND MINIMUM TEMPERATURE AND HUMIDITY IN SEVERAL PARTS OF THE COMMONWEALTH OF AUSTRALIA.



EXPLANATION OF THE GRAPHS OF TEMPERATURE AND HUMIDITY.—In the above graphs in which the heavy lines denote "temperature" and the thin lines "humidity," the fluctuations of mean temperature and mean humidity are shewn throughout the year. These curves are plotted from the data given in the Climatological Tables hereinafter. The temperatures are shewn in degrees Fahrenheit, the inner columns giving the corresponding values in Centigrade degrees. Humidities have not been obtained for Darwin, Daly Waters, and Alice Springs.

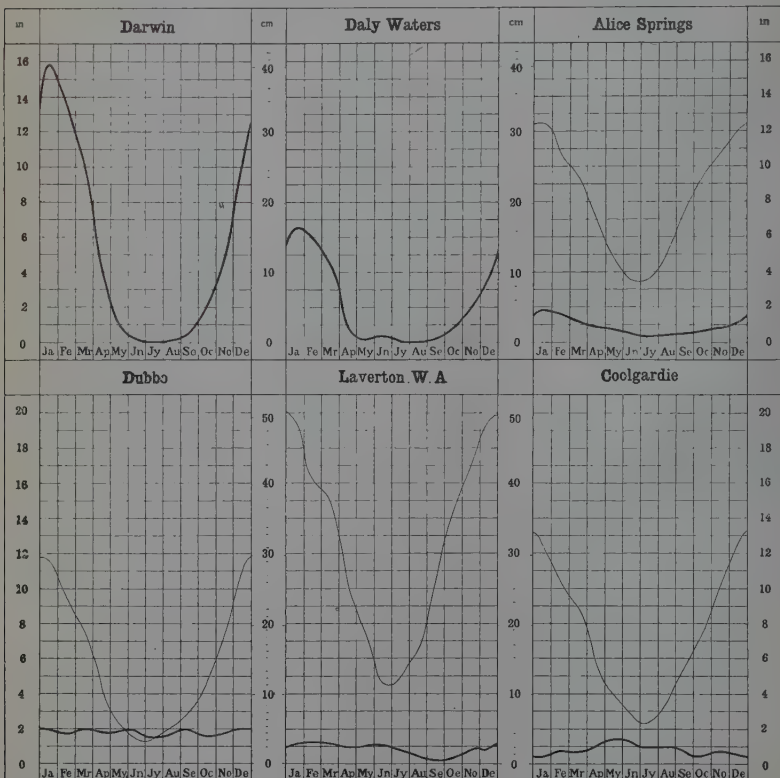
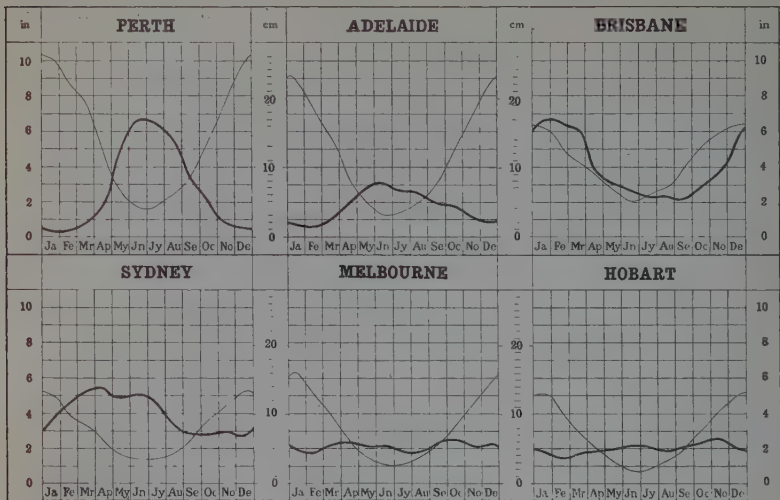
For the thin lines the degree numbers represent relative humidities, or the percentages of actual saturation (absolute saturation = 100).

The upper temperature line represents the mean of the maximum, and the lower line the mean of the minimum results: thus the curves also shew the progression of the range between maximum and minimum temperatures throughout the year. The humidity curves shew the highest and lowest values of the mean monthly humidity at 9 a.m. recorded during a series of years.

INTERPRETATION OF THE GRAPHS.—The curves denote mean monthly values. Thus, taking for example, the temperature graphs for Perth, the mean readings of the maximum and minimum temperatures for a number of years on 1st January would give respectively about 83° Fahr. and 62° Fahr. Thus the mean range of temperature on that date is the difference, viz., 21°. Similarly, observations about 1st June would give respectively about 66° Fahr. and 51° Fahr., or a range of 15°.

In a similar manner it will be seen that the greatest mean humidity, say for March, is about 66° and the least mean humidity for the month 46°: in other words, at Perth the degree of saturation of the atmosphere by aqueous vapour for the month of March ranges between 66% and 46%.

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN RAINFALL AND MEAN EVAPORATION IN SEVERAL PARTS OF THE COMMONWEALTH OF AUSTRALIA.



EXPLANATION OF THE GRAPHS OF RAINFALL AND EVAPORATION.—On the preceding graphs thick lines denote rainfall and thin lines evaporation, and shew the fluctuation of the mean rate of fall *per month* throughout the year. The results, plotted from the Climatological Tables hereinafter, are shewn in inches (see the outer columns), and the corresponding metric scale (centimetres) is shewn in the two inner columns. The evaporation is not given for Darwin and Daly Waters.

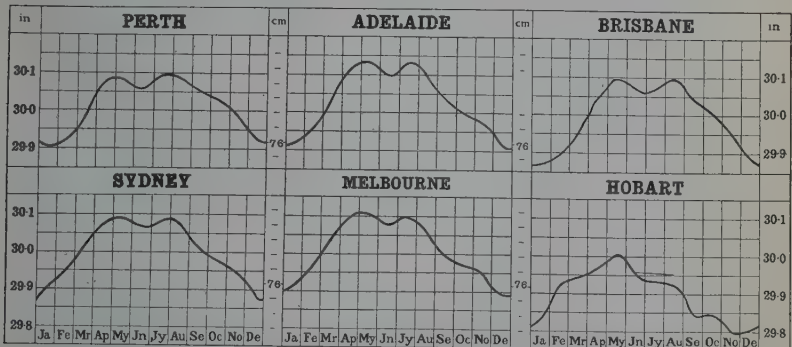
At Perth, Adelaide, Brisbane, Melbourne, Hobart, Alice Springs, and Coolgardie the results have been obtained from jacketed tanks sunk in the ground. At Sydney and Dubbo sunken tanks without water jackets are used, whilst at Laverton (W.A.) the records are taken from a small portable jacketed evaporation dish of 8 inches in diameter.

INTERPRETATION OF THE GRAPHS.—The distance for any date from the zero line to the curve represents the average number of inches, reckoned as per month, of rainfall at that date. Thus, taking the curves for Adelaide, on the 1st January the rain falls on the average at the rate of about four-fifths of an inch per month, or, say, at the rate of about $9\frac{1}{2}$ inches per year. In the middle of June it falls at the rate of nearly 3 inches per month, or, say, at the rate of about 36 inches per year. At Dubbo the evaporation is at the rate of nearly $11\frac{1}{2}$ inches per month about the middle of January, and only about $1\frac{1}{2}$ inches at the middle of June.

TABLE SHEWING MEAN ANNUAL RAINFALL AND EVAPORATION IN INCHES AT THE PLACES SHEWN ON PRECEDING PAGE, AND REPRESENTED BY THE GRAPHS.

—	Rainfall.	Evapora- tion.	—	Rainfall.	Evapora- tion.
Perth ..	33.91	65.95	Darwin ..	61.73	—
Adelaide ..	21.05	54.56	Daly Waters ..	26.39	—
Brisbane ..	45.65	44.28	Alice Springs ..	11.21	94.24
Sydney ..	48.04	38.09	Dubbo ..	22.13	66.37
Melbourne ..	25.66	38.83	Laverton, W.A.	9.98	141.33
Hobart ..	23.59	32.67	Coolgardie ..	10.13	87.72

GRAPHS SHEWING ANNUAL FLUCTUATIONS OF MEAN BAROMETRIC PRESSURE FOR THE CAPITALS OF THE SEVERAL STATES OF THE COMMONWEALTH OF AUSTRALIA.



EXPLANATION OF THE GRAPHS OF BAROMETRIC PRESSURE.—On the above graphs the lines representing the yearly fluctuation of barometric pressure at the State capital cities are means for long periods, and are plotted from the Climatological Tables given hereinafter. The pressures are shewn in inches on about $2\frac{1}{2}$ times the natural scale, and the corresponding pressures in centimetres are also shewn in the two inner columns, in which each division represents one millimetre.

INTERPRETATION OF THE BAROMETRIC GRAPHS.—Taking the Brisbane graph for purposes of illustration, it will be seen that the mean pressure on 1st January is about 29.87 inches, and there are maxima in the middle of May and August of about 30.09 inches.

Chart indicating the area affected and period of duration of the Longest Heat Waves when the Maximum Temperature for consecutive 24 hours reached or exceeded 90° Fah.

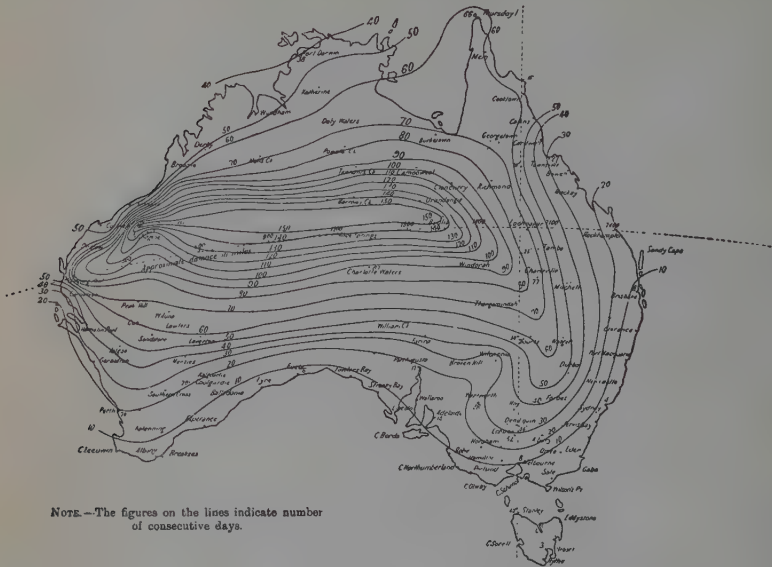
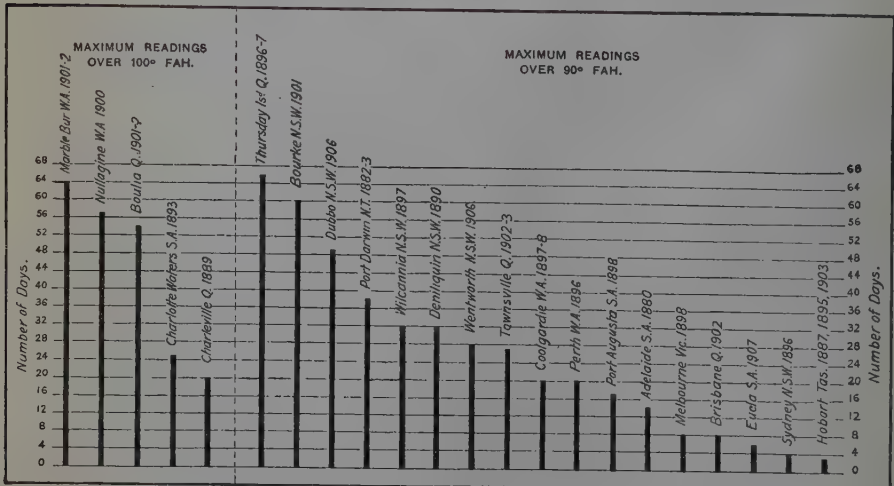


Diagram showing the greatest number of consecutive days on which the Temperature in the shade was over 100° and also over 90° at the places indicated.





METEOROLOGICAL SUB-DIVISIONS.

WEST AUSTRALIA.

- No. 1. East Kimberley.
2. West Kimberley.
3. North-West.
4. Gascoyne.
5. South-West.
6. Eucla.
7. Eastern.

No.

11. Upper North.
12. North-East.
13. Lower North.
14. Central.
15. Murray Valley.
16. South-East.

QUEENSLAND.

17. Peninsular.
18. Gulf.
19. Far West.
20. Central.
21. Nth-East Coast.

No.

22. Central Coast.
23. South-East Coast.
24. Darling Downs.
25. Maranoa.
26. South-West.

NEW SOUTH WALES

27. Western.
28. South-West Plain.
29. South-West Slope.
30. Northern Tableland.
31. North Coast.
32. Hunter & Manning.

No.

33. General Farmland.
34. Macropotian.
35. Cent. Westn. Slope.
36. Cent. Westn. Plain.
37. Riverina.
38. South-West Slope.
39. Southern Tableland.
40. Southern Coast.

VICTORIA.

41. Gippsland.
42. North Coast.
43. Central.

No.

44. North Central.
45. Marnee.
46. Wimmera.
47. Western.

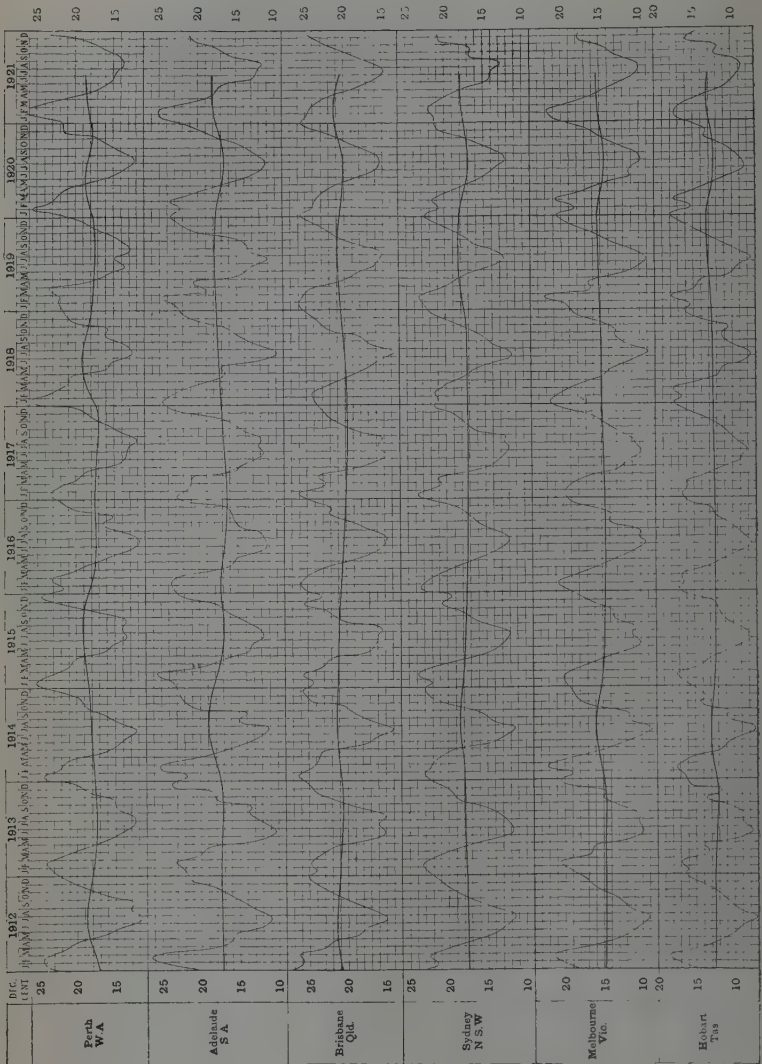
TASMANIA

48. North-West.
49. West Coast.
50. Central Plateau.
51. North-East.
52. South-East.
53. South-West.
54. South-Eastern.

- SOUTH AUSTRALIA.
8. Northern Territory.
9. Far North and N.W.
10. West.

The above are the meteorological sub-divisions adopted by H. A. ROSE Esq. (Western Meteorologist)

GRAPHS SHEWING THE NORMAL MONTHLY, AND NORMAL ANNUAL TEMPERATURES OF THE PRINCIPAL AUSTRALIAN CITIES FROM 1912 TO 1921.



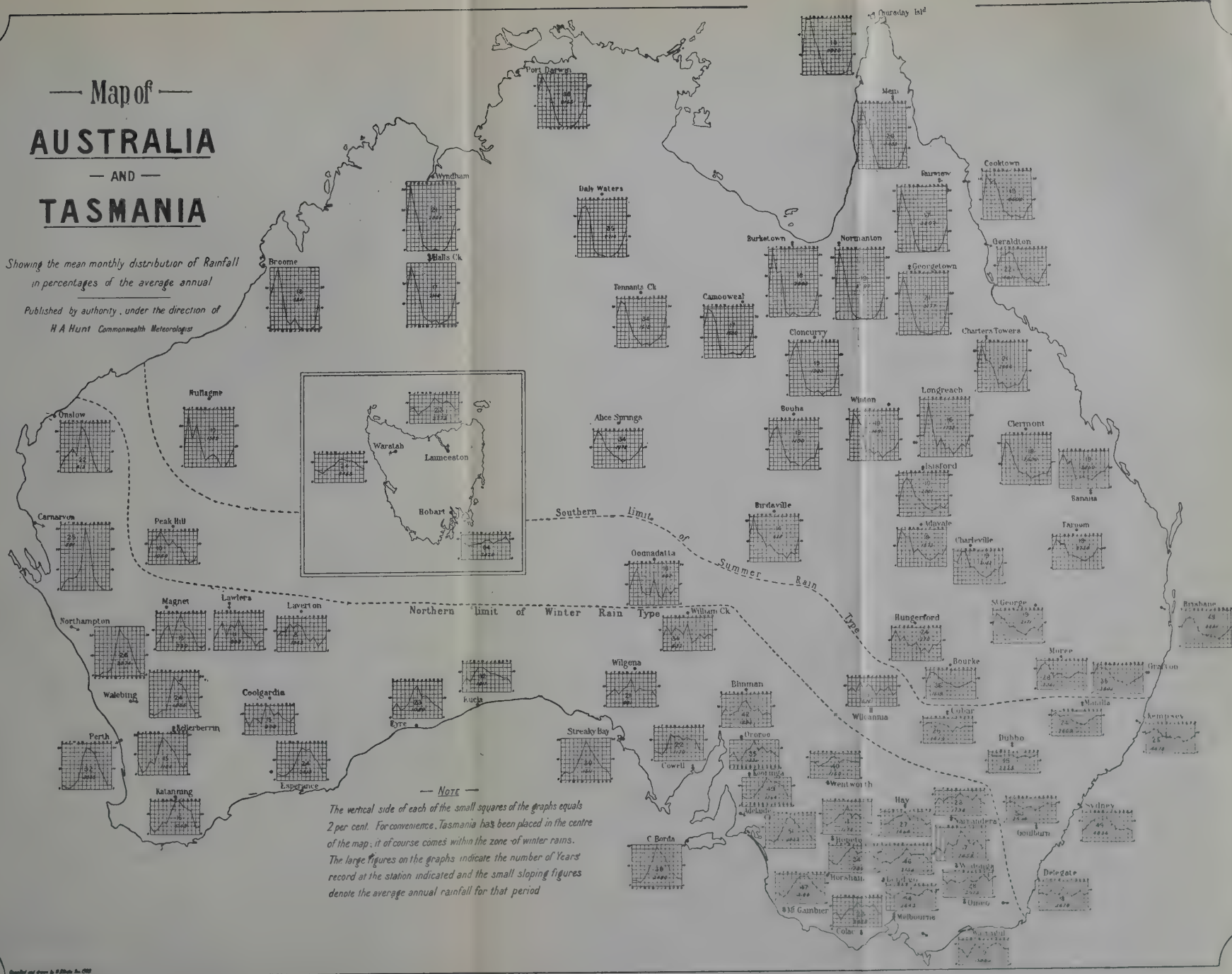
EXPLANATION OF GRAPHS.

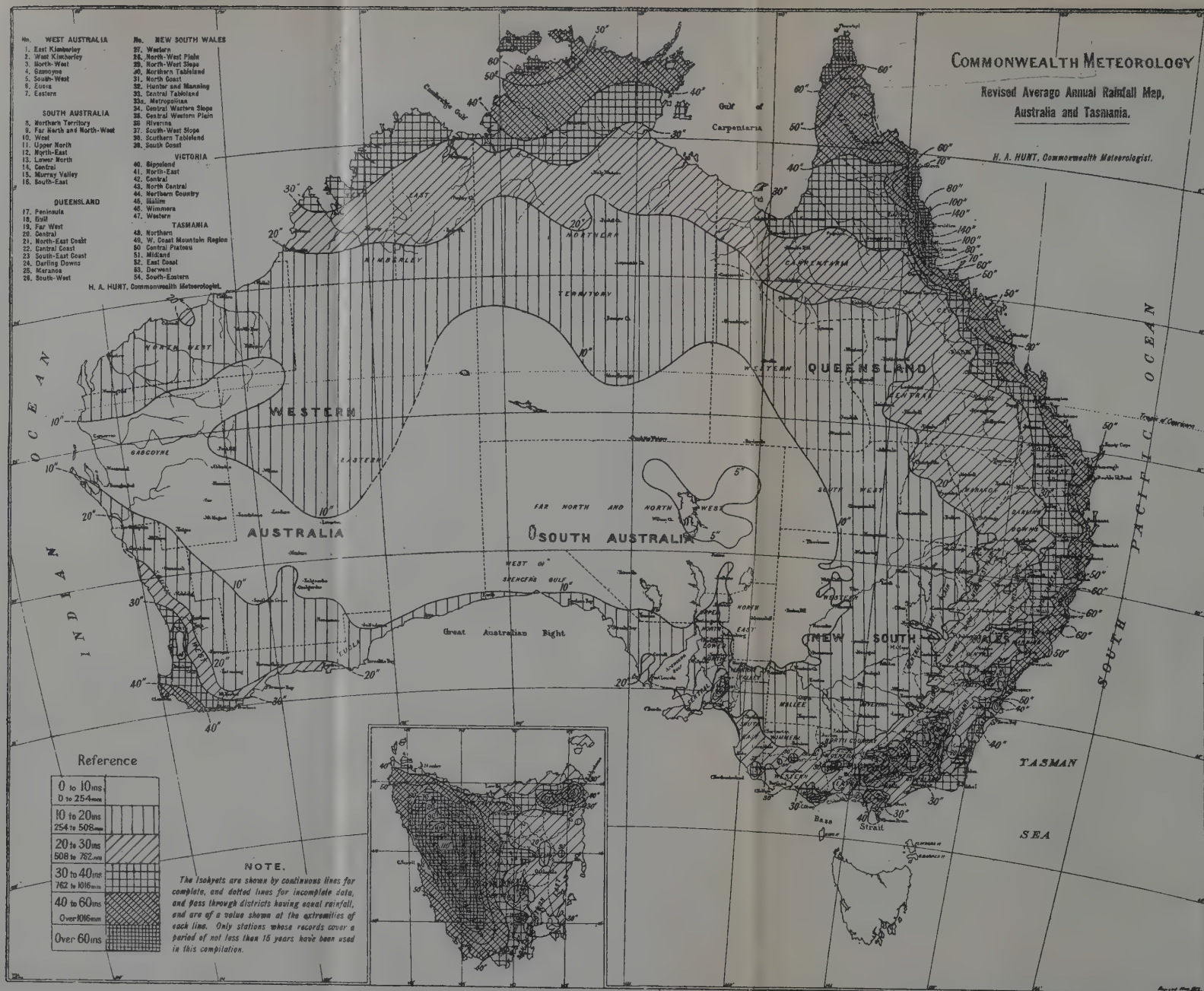
The six light continuous curves shew the fluctuations of mean monthly temperatures of the Australian capitals from 1912 to 1921.

The six heavy curves similarly shew the fluctuations of the mean annual temperatures of the Australian capitals from 1912 to 1921.

The base of each small square denotes one month, and the vertical side 1° Centigrade or 1.8° Fahrenheit.

Published by authority, under the direction of
H A HUNT Commonwealth Meteorologist





CLIMATOLOGICAL DATA FOR HOBART, TASMANIA.

LAT. 42° 53' S., LONG. 147° 20' E. HEIGHT ABOVE M.S.L. 177 Ft.

BAROMETER, WIND, EVAPORATION, LIGHTNING, CLOUDS, AND CLEAR DAYS.

Month.	Bar. corrected to 35° F. Mm. Sea Level and Standard Gravity from 9 a.m. and 3 p.m. readings.	Wind.				Mean Amount of Evaporation (Inches).	No. of Days Lightning.	Mean Amount of Clouds, 9 a.m. 3 p.m. & 9 p.m.	No. of Clear Days
		Greatest Number of Miles in one day.	Mean Hourly Pressure. (lbs.)	Total Miles.	Prevailing Direction.				
No. of yrs. over which observation extends	37	11	11	11	17	11	14	59	15
January ..	29.837	500 30/16	0.19	5,924	NW & SE	5.317	0.6	5.9	2.9
February ..	29.927	393 19/13	0.13	4,474	SE & N	3.885	1.3	5.9	2.7
March ..	29.940	407 16/21	0.13	4,861	N & SE	3.023	1.3	5.9	2.0
April ..	29.959	432 7/17	0.13	4,841	NW & SE	2.036	0.9	6.0	1.6
May ..	29.991	411 3/16	0.12	4,677	N & NW	1.375	0.6	6.0	2.1
June ..	29.939	569 27/20	0.13	4,790	N & NW	0.885	0.6	6.1	1.5
July ..	29.929	425 16/21	0.12	4,790	N & NW	0.918	0.6	5.7	2.7
August ..	29.927	459 30/11	0.13	4,951	N & NW	1.209	0.6	5.9	2.1
September ..	29.847	516 28/15	0.19	5,662	N & NW	2.042	1.0	6.1	1.9
October ..	29.843	461 8/12	0.18	5,728	NW & SE	3.207	0.8	6.3	1.7
November ..	29.801	508 18/15	0.19	5,788	NW & SE	4.074	0.9	6.3	1.7
December ..	29.811	486 30/20	0.18	5,732	NW & SE	4.695	1.3	6.2	1.2
Year { Totals ..	—	—	—	62,218	—	32.666	10.5	—	24.1
Year { Averages ..	29.896	—	0.15	—	N	—	—	6.0	—
Year { Extremes ..	—	569 27/6/20	—	—	—	—	—	—	—

TEMPERATURE AND SUNSHINE.

Month.	Mean Temperature (Fahr.).			Extreme Shade Temperature (Fahr.).		Extreme Range.	Extreme Temperature (Fahr.).		Mean Hours of Sunshine
	Mean Max.	Mean Min.	Mean.	Highest.	Lowest.		Highest in Sun.	Lowest on Grass.	
No. of yrs. over which observation extends	51	51	51	75	75	75	34	54	.27
January ..	71.4	53.0	62.2	105.0 1/00	40.3 (a)	64.7	160.0 (b)	30.6 19/97	210.0
February ..	71.5	53.3	62.4	104.4 12/99	39.0 20/87	65.4	165.0 24/98	28.3 -/87	176.6
March ..	68.0	50.8	59.4	98.8 5/46	36.0 31/05	62.8	150.0 3/05	27.5 35/02	169.7
April ..	62.7	47.6	55.2	90.0 2/56	30.0 25/56	60.0	142.0 18/93	25.0 -/86	137.4
May ..	57.3	43.6	50.4	77.5 1/41	29.2 20/02	48.3	128.0 (d)	20.0 19/02	130.4
June ..	52.8	41.0	46.9	75.0 7/74	28.0 22/79	47.0	122.0 12/94	21.0 6/87	101.0
July ..	51.9	39.2	45.5	72.0 22/77	27.0 18/66	45.0	118.7 19/96	18.7 16/86	123.1
August ..	55.0	41.0	48.0	77.0 8/76	30.0 10/73	47.0	129.0 -/87	20.1 7/09	139.5
September ..	58.8	43.1	51.0	80.0 9/72	30.0 12/41	50.0	138.0 23/93	22.7 -/86	143.0
October ..	62.7	45.4	54.1	92.0 24/14	32.0 12/89	60.0	156.0 9/93	23.8 (e)	167.7
November ..	66.2	48.3	57.3	98.0 20/88	35.2 5/13	62.8	158.0 18/21	26.0 1/08	194.9
December ..	69.5	51.2	60.4	105.2 30/97	38.0 13/06	67.2	161.0 24/20	27.2 -/86	191.7
Year { Averages ..	62.3	46.5	54.4	—	—	78.2	—	—	1,885.0c
Year { Extremes ..	—	—	—	105.2 30/12/97	27.0 18/7/66	—	165.0 24/2/98	18.7 16/7/86	—

(a) 3/72 and 2/06.

(b) 5/86 and 13/05.

(c) Total for year.

(d) -/88 and -/92.

(e) 1/86 and -/99.

HUMIDITY, RAINFALL, AND DEW.

Month.	Rel. Hum. (%)			Rainfall (inches).				Dew (inches)	
	Mean 9 a.m.	Highest Mean.	Lowest Mean.	Mean Monthly.	Mean No. of Days Rain.	Greatest Monthly.	Least Monthly.	Greatest in One Day.	Mean No. of days Dew.
No. of yrs. over which observation extends	38	38	38	79	78	79	79	55	12
January ..	63	77	51	1.78	9	5.91 1893	0.03 1841	2.96 30/16	0.9
February ..	65	80	51	1.43	8	9.15 1854	0.07 1847	4.50 25/54a	2.2
March ..	69	78	58	1.69	10	7.60 1854	0.02 1843	2.79 5/19	4.1
April ..	74	84	61	1.88	11	6.50 1909	0.07 1904	5.02 20/09	10.0
May ..	78	88	68	1.86	13	6.37 1905	0.10 1843	3.22 14/58	12.9
June ..	82	92	68	2.19	14	8.15 1889	0.22 1852	4.11 14/79	7.1
July ..	80	88	72	2.15	14	5.98 1849	0.30 1850	2.00 27/78	7.5
August ..	77	85	64	1.84	14	10.16 1858	0.23 1854	4.35 12/58	7.6
September ..	72	82	60	2.12	14	7.14 1844	0.39 1847	3.50 29/44	4.2
October ..	67	80	51	2.21	15	6.67 1906	0.26 1850	2.58 4/06	3.1
November ..	64	78	50	2.48	14	8.92 1849	0.16 1868	3.97 6/40	1.5
December ..	61	79	49	1.96	11	9.00 1875	0.11 1842	2.48 13/16	0.9
Year { Totals ..	—	—	—	23.39	147	—	—	—	62.9
Year { Averages ..	71	—	—	—	—	10.16 8/1858	0.02 3/1843	5.02 20/4/09	—
Year { Extremes ..	—	92	49	—	—	—	—	—	—

(a) 4.18 on 26/54 also.

SECTION IV.

POPULATION.

[In order to permit of the incorporation of the latest available details in regard to the Census of 1921, this Section has been transferred to the end of the present issue of the Official Year Book, and appears after Section XXXI. It will, however, be placed in its usual order in succeeding issues.]

SECTION V.

VITAL STATISTICS.

NOTE.—The rates quoted throughout this Section for the years 1915 to 1921 have been calculated in accordance with the corrected populations as determined by the results of the Census of 1921.

§ 1. Births.

1. Male and Female Births, 1915 to 1921.—The total number of male and female births registered in the Commonwealth during the years 1915 to 1921 is shewn in the two tables hereunder :—

TOTAL MALE BIRTHS, COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Territory.	Common- wealth.
1915 ..	27,085	17,820	10,444	6,076	4,578	2,991	33	22	69,049
1916 ..	26,615	17,623	9,673	6,200	4,439	2,873	44	38	67,505
1917 ..	27,002	17,220	10,058	5,762	4,058	2,720	42	21	66,883
1918 ..	26,002	16,172	10,080	5,787	3,615	2,717	59	26	64,458
1919 ..	24,924	16,225	9,746	5,776	3,477	2,718	55	10	62,931
1920 ..	27,691	18,647	10,537	6,178	4,256	2,908	31	8	70,256
1921 ..	28,005	18,288	10,638	6,122	3,988	2,944	39	15	70,039

TOTAL FEMALE BIRTHS, COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Territory.	Common- wealth
1915 ..	25,846	17,189	9,719	5,722	4,439	2,854	28	25	65,822
1916 ..	25,465	16,612	9,239	5,657	4,124	2,769	30	25	63,921
1917 ..	25,446	15,813	9,729	5,564	3,824	2,656	27	23	63,082
1918 ..	24,707	15,425	9,456	5,570	3,491	2,563	46	23	61,281
1919 ..	23,608	15,394	8,953	5,284	3,460	2,592	51	17	59,359
1920 ..	26,251	17,566	9,719	5,850	3,893	2,832	32	7	66,150
1921 ..	26,631	17,303	9,691	5,852	3,819	2,811	40	12	66,159

2. Total Births, 1915 to 1921.—The greatest number of births ever recorded in the Commonwealth, viz., 137,983, was reached in 1914. A continuous decrease was experienced each year till 1919. A substantial recovery took place in 1920, and although this was not maintained in 1921, the total of 136,198 births was only 1,785 less than 1914.

TOTAL BIRTHS, COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth.
1915 ..	52,931	35,009	20,163	11,798	9,017	5,845	61	47	134,871
1916 ..	52,080	34,235	18,912	11,857	8,563	5,642	74	63	131,426
1917 ..	52,448	33,033	19,787	11,326	7,882	5,376	69	44	129,965
1918 ..	50,709	31,597	19,536	11,357	7,106	5,280	105	49	125,739
1919 ..	48,532	31,619	18,699	11,060	6,937	5,310	106	27	122,290
1920 ..	53,942	36,213	20,256	12,028	8,149	5,740	63	15	136,406
1921 ..	54,636	35,591	20,329	11,974	7,807	5,755	79	27	136,198

3. Birth Rates, 1915 to 1921.—(i) *Crude Birth Rate.* The most notable feature of the table showing the crude birth rate is the continual fall from 1915 to 1919. This feature, which is doubtless due to the war, is exhibited in all the States. An increase took place in 1920, but this was followed in 1921 by a fall in the rate in every State. The birth rate is still very much below that of pre-war years. The rates in the Territories shew considerable fluctuation, but the numbers concerned are too small to allow of any satisfactory deductions therefrom.

CRUDE BIRTH RATE (a), COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W.Aust.	Tas.	North. Terr.	Federal Territory.	C'with.
1915 ..	28.02	24.45	29.08	26.42	28.09	29.78	14.11	19.05	27.05
1916 ..	27.53	24.20	27.59	26.84	27.38	29.03	15.55	24.11	26.56
1917 ..	27.56	23.40	28.96	25.62	25.76	27.68	14.22	17.65	26.27
1918 ..	26.12	22.19	27.95	25.15	23.08	26.63	21.56	20.19	25.00
1919 ..	24.28	21.46	25.80	23.61	21.71	25.90	22.77	11.68	23.53
1920 ..	26.10	23.95	27.10	24.71	24.73	27.28	14.95	6.90	25.45
1921 ..	25.94	23.15	26.59	24.07	23.43	26.97	20.21	10.87	24.95
Density (b) (No. per square mile) ..	6.87	17.65	1.15	1.32	0.34	8.33	0.007	2.20	1.85

(a) Number of births per 1,000 of the mean annual population. (b) On 31st December, 1921.

The population density of each State and of the Commonwealth has been given for the purpose of considering the influence, if any, of concentration of population on birth rate, in connection with the disparities of the rate in different parts of Australia.

(ii) *Objections to Crude Birth Rate.* The figures just given represent the "crude birth rate," i.e., the number of births per thousand of mean annual population. The number of births per thousand of the female population of child-bearing ages, i.e., from 15 to 45, furnishes, however, a more significant rate. This calculation has been made for the four last Census periods for which the information is available, and covers in each case the Census year, together with the year immediately preceding and the year immediately following. The following results have been obtained for the four Census periods:—Total births per 1,000 women (married and unmarried) of ages 15 to 45:—Years 1880–82, 169.69; years 1890–92, 158.81; years 1900–02, 117.26; years 1910–12, 117.22. Nuptial births per 1,000 married women of ages 15 to 45:—Years 1880–82, 220.96; years 1890–92, 332.03; years 1900–02, 235.84; years 1910–12, 236.06.

4. **Birth Rates of Various Countries.**—A comparison with other countries shows that the Australian States occupy a rather low position, which is, however, fortunately counterbalanced by a still lower position in regard to their death rates, as will be seen from the table hereinafter in the section dealing with "Deaths." It will be noticed that, owing to the difficulty of procuring statistics in regard to the belligerent countries in the late war, many of the rates quoted for continental countries are for rather remote years. Consequently it is not suggested that the comparison instituted in the attached table is exact. This does not however affect the general proposition that Australia takes a low position amongst the countries of the world, both as regards crude birth rate and crude death rate.

CRUDE BIRTH RATE (a) OF VARIOUS COUNTRIES.

Country.	Year.	Rate.	Country.	Year.	Rate.
Russia, European ..	1909	44.0	Australia ..	1921	25.0
Rumania ..	1914	42.5	Norway ..	1918	24.4
Bulgaria ..	1911	40.2	Netherlands ..	1919	24.2
Serbia ..	1912	38.0	South Australia ..	1921	24.1
Chile ..	1914	37.0	Western Australia ..	1921	23.4
Ceylon ..	1920	36.5	New Zealand ..	1921	23.3
Hungary ..	1912	36.3	Victoria ..	1921	23.2
Jamaica ..	1919	34.1	Denmark ..	1919	22.7
Quebec (Canada) ..	1919	33.0	Belgium ..	1912	22.6
Japan ..	1918	32.2	United Kingdom ..	1921	22.5
Austria ..	1912	31.3	England and Wales	1921	22.4
Union of South Africa			United States (b) ..	1919	22.3
(whites) ..	1920	28.9	Ontario (Canada) ..	1919	22.1
Spain ..	1919	28.3	Sweden ..	1918	20.3
Prussia ..	1913	28.2	Ireland ..	1921	20.2
Germany ..	1913	27.5	Finland ..	1919	19.2
Tasmania ..	1921	27.0	Italy ..	1917	19.0
Queensland ..	1921	26.6	France ..	1913	19.0
New South Wales	1921	25.9	Switzerland ..	1919	18.7
Scotland ..	1921	25.2			

(a) Number of births per 1,000 of the mean population. (b) Figures for "provisional birth-registration area," which includes about 59 per cent. of the population.

The wide discrepancies among the crude birth rates of the various countries are, to some extent, due to differences in sex and age constitution and in conjugal condition. If the birth rates be calculated per 1,000 women of child-bearing ages, the comparison shows very different results. The report for 1908 of the Registrar-General for England and Wales contains a table shewing the nuptial births per 1,000 married women of ages 15 to 45 in a number of countries, and the information here given in regard to the period 1900-1902 is taken therefrom.

NUPTIAL BIRTHS PER 1,000 MARRIED WOMEN, AGED 15-45 YEARS, 1900-1902.

Country.	Rate.	Country.	Rate.
Netherlands ..	314.6	Switzerland ..	265.9
Norway ..	302.8	Denmark ..	259.1
Prussia ..	290.4	Spain ..	258.7
Ireland ..	289.4	Belgium ..	250.7
Germany ..	284.2	New Zealand ..	243.2
Austria ..	283.7	Australia ..	235.8
Scotland ..	271.8	England and Wales	235.5
Italy ..	269.4	France ..	157.5
Sweden ..	269.0		

5. **Masculinity at Birth.**—The masculinity of births, i.e., the excess of males over females per 100 births, registered during the last seven years in the several States of the Commonwealth has, apart from the Northern Territory and the Federal Territory, the figures for which are useless for comparative purposes on account of the smallness of the returns on which they are based, varied from 0.25 in Western Australia in 1919 to 4.66 in Queensland in 1921. The following table, which gives the values for the States and Commonwealth for 1915 to 1921, shews that for the Commonwealth there was a steady increase of masculinity from 1915 to 1920, with the exception of 1918. During 1921, however, the figures fell from 3.01 to 2.85.

MASCULINITY (a) OF BIRTHS REGISTERED, COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'wealth.
1915 ..	2.34	1.80	3.60	3.00	1.54	2.34	8.20	-6.38	2.39
1916 ..	2.21	2.95	2.29	4.58	3.68	1.84	18.92	20.63	2.73
1917 ..	2.97	4.26	1.66	1.75	2.97	1.19	21.74	-4.55	2.92
1918 ..	2.55	2.36	3.19	1.91	1.75	2.92	12.38	6.12	2.53
1919 ..	2.71	2.63	4.24	4.45	0.25	2.37	3.77	-25.93	2.92
1920 ..	2.67	2.99	4.04	2.73	4.45	1.32	-1.59	6.67	3.01
1921 ..	2.51	2.77	4.66	2.25	2.16	2.31	-1.27	11.11	2.85

(a) Excess of males over females per 100 total births.

There is ordinarily a very small difference between the masculinity of nuptial and ex-nuptial births. Thus, according to Bodio, whose figures are quoted in the following table, for the period about 1887-1891, the masculinity in various countries ranged from 3.98 to 1.77, and from 3.80 to 0.79 for total and ex-nuptial births respectively.

MASCULINITY OF BIRTHS IN VARIOUS COUNTRIES.

Country.	Masculinity of Births.(a)		Country.	Masculinity of Births.(a)	
	All Live Births.	Ex-nuptial Live Births.		All Live Births.	Ex-nuptial Live Births.
Spain	3.98	3.80	Germany ..	2.53	2.29
Rumania ..	3.71	1.67	Finland ..	2.44	2.53
Portugal ..	3.61	3.10	Hungary ..	2.44	1.43
Austria ..	2.82	2.68	Sweden ..	2.44	2.10
Italy	2.82	2.15	Denmark ..	2.34	2.44
Norway ..	2.82	2.87	Serbia ..	2.30	1.72
Ireland ..	2.68	2.34	France ..	2.25	1.43
Netherlands ..	2.68	2.29	Belgium ..	2.20	1.08
Scotland ..	2.68	2.87	Switzerland ..	2.20	0.79
Russia, European ..	2.63	2.20	England ..	1.77	2.15

(a) Excess of males over females per 100 total births.

The masculinity of ex-nuptial births in the Commonwealth was as follows :—

MASCULINITY (a) OF EX-NUPTIAL BIRTHS REGISTERED, COMMONWEALTH, 1915 TO 1921.

Year	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'with.
1915 ..	-0.72	1.09	-0.37	0.85	0.26	0.32	-17.65	..	0.00
1916 ..	1.67	4.71	6.83	5.68	0.31	-5.26	-6.67	33.33	3.22
1917 ..	2.21	3.61	3.43	0.00	-7.65	5.63	25.00	-100.00	2.34
1918 ..	1.33	-1.68	5.07	-6.14	-5.59	-0.36	14.29	..	0.24
1919 ..	4.93	0.22	8.91	4.84	-2.74	7.98	0.00	-100.00	4.03
1920 ..	3.87	8.20	11.52	-2.22	5.35	-3.63	-6.67	..	5.60
1921 ..	3.94	2.72	-0.94	6.10	6.03	1.26	15.38	..	2.96

(a) Excess of males over females per 100 total births.

It is curious to note that while, so far as the total births are concerned, there has always been an excess of male births over female births in the period under review, this has not been the case in regard to ex-nuptial births, since in every State a negative masculinity has been experienced. Little weight, however, can be attached to these results on account of the small totals on which they are based, and for the same reason the figures for the Northern Territory and Federal Territory are not taken into consideration.

6. *Ex-nuptiality of Births.*—The number of ex-nuptial births reached its maximum, 7,438, in 1913. Since 1915 the numbers recorded have been considerably less than those of the pre-war years.

It is, of course, possible that the number of ex-nuptial births is somewhat understated, owing to diffidence in proclaiming the fact of ex-nuptiality, and it is not unlikely that the majority of unregistered births are ex-nuptial.

TOTAL EX-NUPTIAL BIRTHS REGISTERED IN THE COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'wealth.
1915 ..	2,633	2,012	1,082	472	388	311	17	..	6,910
1916 ..	2,461	1,763	966	458	321	285	15	3	6,272
1917 ..	2,485	1,826	992	448	327	284	16	1	6,379
1918 ..	2,625	1,849	1,066	456	286	279	21	..	6,582
1919 ..	2,495	1,826	1,078	433	292	326	26	1	6,477
1920 ..	2,582	1,902	1,033	450	317	303	15	..	6,602
1921 ..	2,640	1,725	1,062	377	315	318	26	..	6,463

(i) *Rate of Ex-nuptiality, 1915 to 1921.* The rate of ex-nuptiality, i.e., the percentage of ex-nuptial to total births has, on the whole, been fairly stationary during the last seven years. The highest rate for the period occurred in 1919, and the lowest, 4.75 per cent., in 1921.

**PERCENTAGE OF EX-NUPTIAL ON TOTAL BIRTHS, COMMONWEALTH,
1915 TO 1921.**

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'wealth
	%	%	%	%	%	%	%	%	%
1915 ..	4.97	5.74	5.36	4.00	4.24	5.32	27.87	..	5.12
1916 ..	4.73	5.15	5.11	3.80	3.75	5.05	20.27	4.76	4.77
1917 ..	4.74	5.53	5.01	3.96	4.15	5.28	23.19	2.27	4.91
1918 ..	5.18	5.85	5.46	4.02	4.02	5.28	20.00	..	5.23
1919 ..	5.14	5.77	5.76	3.92	4.21	6.14	24.53	3.70	5.30
1920 ..	4.79	5.25	5.10	3.74	3.89	5.28	23.81	..	4.84
1921 ..	4.83	4.85	5.22	3.15	4.03	5.53	32.91	..	4.75

A comparison of greater significance is obtained by calculating the number of ex-nuptial births per thousand of the single and widowed female population between the ages of 15 and 45. The calculation has been made for the last four Census periods for which the information is available, and covers in each case the Census year, together with the year immediately preceding and the year immediately following. The number of ex-nuptial births per 1,000 unmarried women of ages 15 to 45 has been found to be as follows :—Years 1880–82, 14.49; years 1890–92, 15.93; years 1900–02, 13.30; years 1910–12, 12.53. Corresponding figures for those countries for which the nuptial birth rates were shewn in a preceding paragraph are here given for the sake of comparison :—

**EX-NUPTIAL BIRTHS PER 1,000 UNMARRIED WOMEN AGED 15-45 YEARS,
1900 TO 1902.**

Country.	Rate.	Country.	Rate.
Austria	40.1	Spain	15.5
Germany	27.4	Scotland	13.4
Sweden	24.3	Australia	13.3
Denmark	24.2	Switzerland	9.8
Prussia	23.7	New Zealand	8.9
Italy	19.4	England and Wales	8.5
France	19.1	Netherlands	6.8
Belgium	17.8	Ireland	3.8
Norway	17.2		

(ii) *Comparison of Rates.* Since the rate of ex-nuptiality might appear to increase by the mere decrease in the general birth rate, the following table has been prepared, which shews that this is not the case :—

**CRUDE EX-NUPTIAL, NUPTIAL, AND TOTAL BIRTH RATES (a),
COMMONWEALTH, 1915 TO 1921.**

Rates.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Ex-nuptial	1.40	1.28	1.30	1.32	1.26	1.24	1.18
Nuptial	25.85	25.50	25.21	23.93	22.52	24.50	23.77
Total	27.25	26.78	26.51	25.25	23.78	25.74	24.95

(a) Number of births per 1,000 of mean population.

7. Multiple Births.—Among the total number of 136,198 births registered in the Commonwealth in 1921 there were 133,262 single births, 2,900 twins, and 36 triplets. The number of cases of twins was 1,453, there being 6 stillbirths, and the number of cases of triplets 12. The total number of mothers was, therefore, 134,727, the proportion of mothers of twins being one in every 92, and of mothers of triplets one in every 11,227 of total mothers. The proportion of multiple births is a very constant

**PERCENTAGE OF MOTHERS OF MULTIPLE BIRTHS TO TOTAL MOTHERS,
1915 TO 1921.**

Year.	Cases of Twins.	Cases of Triplets.	Cases of Quadruplets.	Percentage of Cases of Multiple Births to total Mothers.	Number of Mothers to each Multiple Birth.
				%	
1915	1,417	10	..	1.06	94
1916	1,383	12	..	1.06	93
1917	1,477	17	1	1.16	86
1918	1,370	8	..	1.10	90
1919	1,327	15	1	1.10	90
1920	1,521	16	..	1.13	88
1921	1,453	12	..	1.09	92

8. **Ages of Parents.**—The relative ages of the parents of children registered in 1921 have been tabulated separately for male and female births, twins and triplets being distinguished from single births, and are shewn for single ages and for every State in "Bulletin of Population and Vital Statistics, No. 39; Commonwealth Demography, 1921 and previous years." In the present work the exigencies of space allow only the insertion of corresponding tables shewing the relative ages of parents in groups of five years. It will be seen from the tables that the largest number of single births occurred where the ages of both father and mother were between 25 and 29. The largest number of mothers was also found at ages 25 to 29.

AGES OF PARENTS IN CASES OF SINGLE BIRTHS, COMMONWEALTH, 1921.

Ages of Fathers and Sexes of Children.		Total Children.	Ages of Mothers.								Un- speci- fied.
			Under 15.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 and upwards.	
Under 20	Males..	265	1	174	85	5	..	..	..	..	..
	Females	215	..	149	61	5	..	..	..	..	..
20 to 24	Total ..	480	1	323	146	10	..	..	..	..	..
	Males..	6,762	2	1,278	4,438	945	77	17	..	..	1
25 to 29	Females	6,259	1	1,126	4,109	908	101	13	..	1	..
	Total ..	13,021	3	2,404	8,547	1,853	178	30	4	1	1
30 to 34	Males..	16,640	..	618	6,490	7,807	1,532	173	19	..	1
	Females	15,614	1	606	6,102	7,372	1,836	179	17	1	..
35 to 39	Total ..	32,254	1	1,224	12,592	15,179	2,868	352	36	1	1
	Males..	17,320	1	189	2,647	6,963	6,336	1,093	84	4	3
40 to 44	Females	16,179	..	201	2,516	6,658	6,957	1,029	108	..	1
	Total ..	33,790	1	390	5,163	13,621	12,293	2,122	192	4	4
45 to 49	Males..	12,177	..	56	761	2,684	4,588	3,671	407	9	1
	Females	11,593	..	53	706	2,481	4,467	3,474	404	7	1
50 to 54	Total ..	23,770	..	109	1,467	5,165	9,055	7,145	811	16	2
	Males..	6,979	..	19	210	819	1,960	2,666	1,272	32	1
55 to 59	Females	6,560	..	15	194	749	1,753	2,565	1,246	38	..
	Total ..	13,539	..	34	404	1,568	3,713	5,231	2,518	70	1
60 to 64	Males..	3,219	..	8	74	287	596	1,264	891	119	..
	Females	3,154	..	13	75	283	603	1,136	958	105	1
65 and up- wards	Total ..	6,373	..	21	149	530	1,199	2,400	1,849	224	1
	Males..	1,301	..	3	17	67	223	409	498	83	1
Not stated	Females	1,246	..	5	18	86	215	394	448	80	..
	Total ..	2,547	..	8	35	153	438	803	946	163	1
Nuptial children	Males..	438	..	..	8	39	73	136	144	38	..
	Females	400	..	2	6	36	66	144	114	32	..
Ex-nuptial children	Total ..	838	..	2	14	75	139	280	258	70	..
	Males..	118	..	..	6	9	22	34	39	7	..
Total children	Females	96	..	..	..	2	26	32	28	8	1
	Total ..	214	..	..	6	11	48	66	67	15	1
Total	Males..	39	..	..	1	4	7	9	16	2	..
	Females	45	..	..	2	6	8	12	15	2	..
Total children	Total ..	84	..	..	3	10	15	21	31	4	..
	Males..	7	..	..	2	1	1	2	1	..	..
Total children	Females	4	..	..	1	..	2	1	..	..	..
	Total ..	11	..	..	3	1	3	3	1	..	..
Total children	Males..	65,265	4	2,345	14,739	19,610	15,415	9,474	3,375	295	8
	Females	61,656	2	2,170	13,790	18,566	14,534	8,970	3,338	273	4
Total children	Total ..	126,921	6	4,515	28,529	38,176	29,949	18,453	6,713	568	12
	Males..	3,275	16	821	1,204	592	341	213	80	5	3
Total children	Females	3,066	10	758	1,118	577	325	204	61	11	2
	Total ..	6,341	26	1,579	2,322	1,169	666	417	141	16	5
Total children	Males..	68,540	20	3,166	15,943	20,202	15,756	9,687	3,455	300	11
	Females	64,722	12	2,928	14,908	19,143	14,859	9,183	3,399	284	6
Total children	Total ..	133,262	32	6,094	30,851	39,345	30,615	18,870	6,854	584	17

AGES OF PARENTS OF TWINS, COMMONWEALTH, 1921.

Ages of Fathers and Sexes of Children.			Total Children.	Ages of Mothers.						
				Under 20.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 and upwards.
Under 20	Females	2	2	2	2	2	2	2	2	2
	Total	2	2	2	2	2	2	2	2	2
20 to 24	Males	96	14	55	24	3	3	3	3	3
	Females	84	8	61	12	3	3	3	3	3
	Total	180	22	116	36	6	6	6	6	6
25 to 29	Males	237	3	78	123	28	4	1	1	1
	Females	247	11	69	133	27	6	1	1	1
	Total	484	14	147	256	55	10	2	2	2
30 to 34	Males	412	4	39	132	195	40	2	2	2
	Females	382	4	37	126	176	39	4	4	4
	Total	794	4	76	258	371	79	6	6	6
35 to 39	Males	332	2	12	44	148	116	12	12	12
	Females	317	2	10	62	112	123	10	10	10
	Total	649	2	22	106	260	239	22	22	22
40 to 44	Males	192	2	19	42	87	44	2	2	2
	Females	187	2	19	49	79	38	2	2	2
	Total	379	2	38	91	166	82	2	2	2
45 to 49	Males	90	2	11	21	37	18	2	2	2
	Females	96	2	5	23	41	25	2	2	2
	Total	186	2	16	44	78	44	4	4	4
50 to 54	Males	52	2	3	13	18	18	18	18	18
	Females	30	2	5	7	6	12	12	12	12
	Total	82	2	8	20	24	30	30	30	30
55 to 59	Males	12	2	1	1	5	6	6	6	6
	Females	10	2	1	1	3	1	1	1	1
	Total	22	2	2	2	8	12	12	12	12
60 and over	Males	4	2	2	2	2	2	2	2	2
	Females	2	2	2	2	2	2	2	2	2
	Total	6	2	2	2	2	2	2	2	2
Nuptial children	Males	1,427	21	184	356	453	307	104	2	2
	Females	1,357	19	179	362	398	299	96	4	4
	Total	2,784	40	363	718	851	606	200	6	6
Ex-nuptial children	Males	47	7	17	12	5	5	1	1	1
	Females	69	13	19	16	9	5	7	7	7
	Total	116	20	36	28	14	10	8	8	8
Total children	Males	1,474	28	201	368	458	312	105	2	2
	Females	1,426	32	198	378	407	304	103	4	4
	Total	2,900	60	399	746	865	616	208	6	6

AGES OF PARENTS OF TRIPLETS, COMMONWEALTH, 1921.

Ages of Fathers and Sexes of Children.			Total Children.	Ages of Mothers.				
				Under 20	20 to 24.	25 to 29.	30 to 34.	35 to 39.
20 to 24	Males	3	3	3	3	3	3	3
	Females	3	3	3	3	3	3	3
	Total	6	6	6	6	6	6	6
25 to 29	Males	11	11	6	5	1	3	3
	Females	4	4	6	1	3	3	3
	Total	15	15	12	6	4	6	6
30 to 34	Males	4	4	4	4	4	4	4
	Females	5	5	4	4	4	4	4
	Total	9	9	8	8	8	8	8
35 to 39	Males	2	2	2	2	2	2	2
	Females	1	1	1	1	1	1	1
	Total	3	3	3	3	3	3	3
Nuptial children	Males	20	20	9	5	6	6	6
	Females	10	10	9	1	9	9	9
	Total	30	30	18	6	15	15	15
Ex-nuptial children	Males	5	5	2	2	1	1	1
	Females	1	1	3	1	1	1	1
	Total	6	6	5	3	2	2	2
Total children	Males	25	25	3	9	7	6	6
	Females	11	11	3	9	2	9	9
	Total	36	36	6	18	9	15	15

No deductions can, of course, be drawn from one year's figures as to variations in the masculinity of the births at different ages of the parents, but so far as the figures go they indicate a few conclusions which may be mentioned, viz.:—In cases where the father is older than the mother the masculinity has a tendency to be above the average, while in cases where both parents belong to the same age group, or where the father is younger than the mother, the masculinity is rather below the average. It is also below the average in cases where the father, or both father and mother, are under 25; and it is above the average where the mother alone is under 25.

9. Birthplaces of Parents.—The relative birthplaces of the parents of children whose births were registered during the year 1921 will be found tabulated in the Bulletin before-mentioned. A summary of the results of the tabulation is here given:—

BIRTHPLACES OF PARENTS OF CHILDREN, COMMONWEALTH, 1921.

Birthplaces.	Fathers.			Mothers of Nuptial Children.			Mothers of Ex-nuptial Children.		
	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.
AUSTRALASIA—									
Commonwealth of Australia—									
New South Wales	41,040	405	4	43,038	447	4	2,359	19	2
Victoria ..	33,203	390	3	32,205	356	3	1,619	12	..
Queensland ..	13,467	139	..	15,348	156	..	897	12	..
South Australia	11,664	134	1	11,353	135	1	370	4	..
Western Australia	2,018	19	..	2,658	23	..	219	2	..
Tasmania ..	5,683	53	2	5,787	53	2	405	3	..
North Territory	18	..	..	29	..	..	26	..	..
Federal Territory	2	..	..	..	..	..	..	..	..
New Zealand ..	1,093	7	..	737	6	..	45	..	..
EUROPE—									
England ..	11,496	157	..	10,716	145	..	257	5	..
Wales ..	332	5	..	249	4	..	4	..	..
Scotland ..	2,614	34	..	2,371	29	..	60	..	..
Ireland ..	1,344	21	..	932	14	..	25	1	..
Isle of Man	17	..	..	6	..	..	..	..	..
Other European British Possessions..	60	1	..	36	1	..	1	..	..
Austria-Hungary ..	53	1	..	32	..	..	1	..	..
Belgium ..	15	..	..	31	..	..	..	..	..
Denmark ..	156	2	..	41	..	..	..	..	..
France ..	64	..	..	77	1	..	2	..	..
Germany ..	454	4	..	172	6	..	6	..	..
Greece ..	148	5	..	76	2	..	..	..	..
Italy ..	297	2	..	169	2	..	2	..	..
Netherlands ..	61	1	..	25	..	..	1	..	..
Norway ..	85	..	..	18	..	..	..	..	..
Portugal ..	2	1	..	3	..	..	..	..	..
Russia ..	262	3	..	127	1	..	1	..	..
Spain ..	33	..	..	21	..	..	..	..	..
Sweden ..	132	4	..	6	..	..	1	..	..
Switzerland ..	41	..	..	19	..	..	1	..	..
Other European Countries ..	39	..	..	11	1	..	..	..	..
ASIA—									
British India ..	132	..	..	78	1	..	..	..	..
Ceylon ..	12	..	..	11	..	..	..	..	..
Hong Kong ..	2	..	..	..	..	..	..	..	..
Straits Settlements	10	..	..	6	..	..	..	..	..
Other Asiatic British Possessions ..	3	..	..	..	..	..	..	..	..

BIRTHPLACES OF PARENTS OF CHILDREN—*continued.*

Birthplaces.	Fathers.			Mothers of Nuptial Children.			Mothers of Ex-nuptial Children.		
	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.	Single Births.	Twins.	Trip-lets.
ASIA—<i>continued.</i>									
Arabia .. ..	..	..	..	..	..	..	..	..	..
China	119	..	..	35	..	..	1	..	..
Japan	21	..	..	15	..	..	..	..	..
Java	4	..	..	1	..	..	..	..	..
Philippine Islands..	3	..	..	..	..	..	..	..	..
Syria	78	2	..	51	2	..	1	..	..
Other Asiatic Coun-tries	11	1	..	7	..	..	..	..	..
AFRICA—									
Mauritius	11	..	..	3	..	..	..	..	..
S. Africa, Union of	100	1	..	101	5	..	6	..	..
Egypt	12	..	..	22	1	..	1	..	..
Other African Brit-ish Possessions ..	4	..	..	..	..	..	..	..	..
Other African Coun-tries	3	..	..	1	..	..	..	..	..
AMERICA—									
Barbadoes	1	..	..	..	..	..	..	..	..
Canada	88	..	..	47	..	..	..	..	..
Jamaica	1	..	..	3	..	..	..	..	..
Newfoundland ..	4	..	..	2	..	..	..	..	..
Other American Brit-ish Possessions ..	7	1	..	6	..	..	..	..	..
Argentine Republic	4	..	..	3	..	..	..	..	..
Brazil	2	..	..	1	..	..	..	..	..
Chile .. ..	..	..	..	3	..	..	..	..	..
Mexico	1	..	..	..	..	..	..	..	..
United States of America ..	199	2	..	89	3	..	11	..	..
Other American Countries ..	36	..	..	17	..	..	1	..	..
POLYNESIA—									
Fiji	36	..	..	27	..	..	1	..	..
Friendly Islands ..	2	..	..	..	..	..	..	..	..
Papua .. ..	..	..	..	1	..	..	..	..	..
Other Polynesian British Possessions	7	..	..	3	..	..	..	..	..
New Caledonia ..	20	..	..	26	..	..	4	..	..
New Hebrides ..	3	..	..	2	1	..	..	..	..
Samoa	1	..	..	2	..	..	..	..	..
South Sea Islands (so described) ..	12	..	..	1	..	..	..	..	..
At Sea	59	..	..	38	..	..	1	..	..
Unspecified	15	..	..	26	..	..	12	..	..
Total	126,921	1,395	10	126,921	1,395	10	6,341	58	2

10. Occupations of Fathers.—A summary of the occupations of the fathers of all nuptial children, whose births were registered in 1921, will be found in the following table. The figures include all the States and Territories of the Commonwealth.

OCCUPATIONS OF FATHERS OF ALL NUPTIAL CHILDREN, COMMONWEALTH, 1921.

Occupations.	Number of Fathers.	Occupations.	Number of Fathers.
CLASS I.—PROFESSIONAL.		CLASS III.—COMMERCIAL.—<i>contd.</i>	
General Government	739	Gold, Silver, and Precious Stones ..	1
Local Government	118	Ironmongery	145
Defence	458	Merchants, Importers	428
Law and Order	1,166	Shopkeepers and Assistants	1,271
Religion	412	Dealers and Hawkers	329
Charities	2	Agents and Brokers	607
Health	1,113	Clerks, Bookkeepers, etc.	4,794
Literature	116	Commercial Travellers, Salesmen ..	1,732
Science	80	Others engaged in Commercial Pursuits	1,491
Civil Engineering, Architecture, and Surveying	475	Speculators on Chance Events	56
Education	778	Storage	1
Fine Arts	136	Total Commercial	18,298
Music	148		
Amusements	463		
Total Professional	6,204	CLASS IV.—TRANSPORT AND COMMUNICATION.	
CLASS II.—DOMESTIC.		Aviation	14
Hotelkeepers and Assistants	1,050	Railway Traffic	5,309
Others engaged in providing board and lodging	179	Tramway Traffic	1,311
House Servants	2	Road Traffic	5,785
Coachmen and Grooms	80	Sea and River Traffic	1,613
Hairdressers	582	Postal Service	712
Laundrymen	36	Telegraph and Telephone Service ..	587
Others engaged in domestic occupations	390	Messengers, etc.	20
Total Domestic	2,319	Total Transport & Communication ..	15,351
CLASS III.—COMMERCIAL.		CLASS V.—INDUSTRIAL.	
Banking and Finance	585	Books and Publications	806
Insurance and Valuation	541	Musical Instruments	80
Landed and House Property	189	Prints, Pictures and Art Materials ..	67
Property Rights <i>n.e.i.</i>	3	Ornaments and Small Wares	137
Books, Publications, Advertising ..	166	Equipment for Sports and Games ..	2
Musical Instruments	10	Medals, Type, and Dies	39
Prints, Pictures and Art Materials ..	5	Watches, Clocks, and Scientific Instruments	118
Ornaments and Small Wares	2	Surgical Instruments	16
Watches, Clocks, Jewellery	8	Arms and Ammunition	30
Machinery	32	Engines, Machines, Tools, and Implements	1,718
Carriages and Vehicles	44	Carriages and Vehicles	1,449
Harness, Saddlery & Leatherware ..	3	Harness, Saddlery & Leatherware ..	380
Ships and Boats	14	Ships, Boats, etc.	150
Building Materials	9	Furniture	833
Furniture	38	Building Materials	1,089
Chemicals and By-products	15	Chemicals and By-products	54
Paper and Stationery	62	Textile Fabrics	208
Textile Fabrics	437	Dress	1,885
Dress	180	Fibrous Materials	36
Fibrous Materials	7	Animal Food	332
Animal Food	2,351	Vegetable Food	1,438
Vegetable Food	746	Groceries, Drinks, Narcotics, and Stimulants	314
Groceries, Drinks, Narcotics, and Stimulants	1,326	Animal Matter <i>n.e.i.</i>	351
Living Animals	156	Workers in Wood <i>n.e.i.</i>	181
Leather, Raw Materials	36	Vegetable Produce for Fodder	12
Wool and Tallow	67	Paper	16
Hay, Corn, etc.	166	Stone, Clay, Glass, etc.	589
Other Vegetable Matter, <i>n.e.i.</i>	77	Jewellery and Precious Stones	227
Wood and Coal	143	Metals, other than Gold & Silver ..	3,083
Stone, Clay and Glass	25	Gas, Electric Lighting, etc.	1,119

OCCUPATIONS OF FATHERS OF ALL NUPTIAL CHILDREN—*continued.*

Occupations.	Number of Fathers.	Occupations.	Number of Fathers.
CLASS V.—INDUSTRIAL—<i>contd.</i>		CLASS VI.—AGRICULTURAL, PASTORAL, MINING, ETC.	
Building—		Agricultural	21,919
Builders	607	Pastoral	3,894
Stonemasons	191	Dairy Farming	1,316
Bricklayers	640	Bees, Fisheries, and Wild Animals	461
Carpenters	3,167	Forestry	995
Slaters	54	Water Conservation and Supply	113
Plasterers	367	Mines and Quarries	3,707
Painters	1,109	Total Primary Producers	32,405
Plumbers	832		
Signwriters	65		
Others	36	CLASS VII.—INDEFINITE.	
Roads, Railways, Earthworks ..	211	Independent Means, having no specific occupation ..	115
Disposal of the Dead	40	Occupation not stated ..	54
Disposal of Refuse	93	Total Indefinite ..	169
Other Industrial Workers—			
Manufacturers, etc. ..	663	CLASS VIII.—DEPENDENTS.	
Engineers, Firemen ..	3,357	Dependent Relatives ..	7
Contractors	1,138	Dependent on State ..	6
Labourers, undefined ..	23,826	Total Dependents ..	13
Others	412	Total all Occupations ..	128,326
Total Industrial ..	53,567		

11. *Mother's Age, Duration of Marriage, and Issue.*—A tabulation has been made shewing, in age-groups, the duration of marriage and issue of mothers. The total number of nuptial confinements in 1921 was 128,326, viz., 126,921 single births, 1,395 cases of twins, and 10 cases of triplets. Account has been taken in the number of births of only 2,784 twins and 30 triplets, 6 cases of stillbirths having been excluded. From this number 55 mothers must be deducted, in whose cases the necessary particulars either as to date of marriage or as to previous issue were not stated. The tables refer, therefore, to a total of 128,271 mothers. They exclude children by former marriages and still-born children, but include ex-nuptial children, previous issue by the same father. The tables cannot be given in *extenso*, but the following are their most salient features. The complete tabulations are shewn in "Commonwealth Bulletin of Population and Vital Statistics, No. 39; Commonwealth Demography, 1921, and previous years."

DURATION OF MARRIAGE AND ISSUE OF MOTHERS OF ALL AGES,
COMMONWEALTH, 1921.

Duration of Marriage.	Total Mothers.	Total Issue.	Average Number of Children.	Duration of Marriage.	Total Mothers.	Total Issue.	Average Number of Children.
Years.				Years.			
0-1 ..	22,997	23,294	1.01	18-19 ..	1,363	10,198	7.48
1-2 ..	12,475	13,950	1.12	19-20 ..	1,186	9,197	7.75
2-3 ..	10,374	18,353	1.77	20-21 ..	945	7,725	8.17
3-4 ..	9,423	19,138	2.03	21-22 ..	848	7,156	8.44
4-5 ..	8,005	19,073	2.38	22-23 ..	530	4,652	8.78
5-6 ..	7,940	21,553	2.71	23-24 ..	382	3,532	9.25
6-7 ..	7,337	24,016	3.06	24-25 ..	280	2,617	9.35
7-8 ..	7,149	24,980	3.49	25-26 ..	151	1,506	9.97
8-9 ..	6,204	23,616	3.82	26-27 ..	104	1,087	10.45
9-10 ..	5,535	22,977	4.15	27-28 ..	57	588	10.32
10-11 ..	4,750	21,286	4.48	28-29 ..	30	315	10.50
11-12 ..	4,383	21,476	4.90	29-30 ..	30	328	10.93
12-13 ..	3,486	18,637	5.35	30-31 ..	10	115	11.50
13-14 ..	2,973	16,564	5.57	31-32 ..	6	55	9.17
14-15 ..	2,747	16,534	6.02	32-33 ..	3	39	13.00
15-16 ..	2,433	15,423	6.34				
16-17 ..	2,055	13,807	6.72	Total ..	128,271	394,901	3.08
17-18 ..	1,580	11,044	6.99				

AGES AND ISSUE OF MOTHERS, COMMONWEALTH, 1921.

Ages of Mothers.	Total Mothers.	Total Issue.	Average Number of Children.	Ages of Mothers.	Total Mothers.	Total Issue.	Average Number of Children.
Under 20 years	4,537	5,279	1.16	40-44 years ..	6,808	42,673	6.27
20-24 years ..	28,703	47,209	1.64	45 yrs. and over	571	4,589	8.04
25-29 ..	38,529	93,968	2.44				
30-34 ..	30,371	108,333	3.57				
35-39 ..	18,752	92,850	4.95	All ages ..	128,271	394,901	3.08

PREVIOUS ISSUE OF MOTHERS OF VARIOUS AGES, COMMONWEALTH, 1921.

Previous Issue.	Mothers' Ages.							Total.
	Under 20 Years.	20-24 Years.	25-29 Years.	30-34 Years.	35-39 Years.	40-44 Years.	45 Years and Over.	
0	3,883	16,247	13,232	5,410	1,787	444	15	41,018
1	591	8,186	9,859	5,514	1,973	403	13	26,539
2	58	3,015	7,070	5,557	2,492	588	31	18,811
3	5	989	4,556	4,941	2,667	707	46	13,911
4	..	211	2,351	3,514	2,512	790	42	9,420
5	..	45	963	2,608	2,230	796	52	6,694
6	..	3	356	1,539	1,765	739	59	4,461
7	..	7	95	819	1,373	661	42	2,997
8	..	..	36	293	936	562	63	1,890
9	..	..	9	123	559	468	60	1,219
10	..	..	2	33	263	297	61	661
11	..	..	..	11	106	194	39	350
12	..	..	..	5	42	88	17	152
13	..	..	..	4	27	36	12	79
14	..	..	..	..	7	18	9	34
15	..	..	..	..	7	6	6	19
16	..	..	..	..	1	5	3	9
17	..	..	..	..	..	5	..	5
19	..	..	..	..	..	..	1	1
21	..	..	..	..	..	1	..	1
Total Mothers	4,537	28,703	38,529	30,371	18,752	6,808	571	128,271

The tables shew a fairly regular increase in the number of children up to the period where the marriage has lasted twenty years, and it appears that the average interval between successive confinements up to that period was rather more than two years and eight months. The average number of children of all marriages was 3.08, the corresponding figures for 1920 having been 3.11; for 1919, 3.33; for 1918, 3.34; for 1917, 3.29; for 1916, 3.29; and for 1915, 3.26.

A similar table has been prepared shewing the previous issue of mothers of twins and triplets, from which it appears that 329 mothers had twins at their first confinement; 272 at their second; 200 at their third; 151 at their fourth; 140 at their fifth; 112 at

their sixth; 74 at their seventh; 45 at their eighth; 37 at their ninth; 19 at their tenth; 10 at their eleventh; 4 at their twelfth; and 2 at their thirteenth.

Of the 10 cases of triplets, 4 occurred at the first confinement; 3 at the second; 2 at the third; and 1 at the sixth.

12. **Interval between Marriage and First Birth.**—The following table shows the interval between marriage and first birth. Twins and triplets are included, the eldest born only being enumerated:—

INTERVAL BETWEEN MARRIAGE AND FIRST BIRTH, COMMONWEALTH, 1921.

Interval.	Number of First Children.			Interval.	Number of First Children.		
	Males.	Females.	Total.		Males.	Females.	Total.
Under 1 month	239	198	437	2 years ..	1,511	1,412	2,923
1 month ..	271	267	538	3 " ..	711	702	1,413
2 months ..	402	333	735	4 " ..	443	394	837
3 " ..	551	466	1,017	5 " ..	352	302	654
4 " ..	704	632	1,336	6 " ..	186	163	349
5 " ..	945	836	1,781	7 " ..	114	111	225
6 " ..	1,239	1,181	2,420	8 " ..	72	75	147
7 " ..	1,167	1,064	2,231	9 " ..	49	49	98
8 " ..	1,015	935	1,950	10 " ..	36	44	80
9 " ..	2,103	2,119	4,222	11 " ..	23	27	50
10 " ..	1,899	1,731	3,630	12 " ..	21	20	41
11 " ..	1,357	1,288	2,645	13 " ..	17	13	30
12 " ..	1,007	943	1,950	14 " ..	14	8	22
13 " ..	808	792	1,600	15 " ..	7	12	19
14 " ..	678	572	1,250	16 " ..	9	11	20
15 " ..	586	543	1,129	17 " ..	5	6	11
16 " ..	461	476	937	18 " ..	2	1	3
17 " ..	404	383	787	19 " ..	..	1	1
18 " ..	407	400	807	20 " ..	1	1	2
19 " ..	384	321	705	23 " ..	1	..	1
20 " ..	340	306	646	29 " ..	1	..	1
21 " ..	234	263	497				
22 " ..	245	225	470				
23 " ..	181	190	371	Total ..	21,202	19,816	41,018

The masculinity of first births was 3.38 as compared with 2.85 for total births.

The previous issue of mothers of ex-nuptial children is not recorded, but for the purposes of the following table all ex-nuptial births have been assumed to be first births. The table shows the ages of mothers of ex-nuptial births, of nuptial births occurring less than nine months after marriage, and of nuptial births occurring nine months or more after marriage. A comparison of the combined total of the first two columns with the total of nuptial children born nine months or more after marriage reveals the fact that for all ages the ratio of the two was about as 2 is to 3. At all ages up to and including 21, however, there was a great preponderance of ex-nuptial births and of births following on ante-nuptial conception. It must, of course, be understood that a certain number of premature births is necessarily included among the births which occurred less than nine months after marriage, but there is no means of arriving at the proportion of those births.

AGES OF MOTHERS AND INTERVAL BETWEEN MARRIAGE AND FIRST BIRTH, ETC., COMMONWEALTH, 1921.

Age of Mother at Birth of Child.	Ex-nuptial Births.	Nuptial Births less than nine months after Marriage.	Total of two preceding columns.	Nuptial Births nine months after Marriage and later.	Total Nuptial First Births.	Nuptial First Births and Ex-nuptial Births.
12 years ..	1	..	1	..	..	1
13 " ..	4	..	4	..	..	4
14 " ..	23	5	28	1	6	29
15 " ..	63	18	81	2	20	83
16 " ..	172	126	298	24	150	322
17 " ..	307	419	726	73	492	799
18 " ..	487	876	1,363	297	1,173	1,660
19 " ..	559	1,297	1,856	745	2,042	2,601
20 " ..	562	1,379	1,941	1,156	2,535	3,097
21 " ..	556	1,574	2,130	1,651	3,225	3,781
22 " ..	448	1,293	1,741	2,190	3,483	3,931
23 " ..	418	1,081	1,499	2,490	3,571	3,989
24 " ..	356	849	1,205	2,584	3,433	3,789
25 " ..	324	741	1,065	2,596	3,337	3,661
26 " ..	248	611	859	2,392	3,003	3,251
27 " ..	241	475	716	2,128	2,603	2,844
28 " ..	200	371	571	1,917	2,288	2,488
29 " ..	171	309	480	1,692	2,001	2,172
30 " ..	192	243	435	1,421	1,664	1,856
31 " ..	129	168	297	1,084	1,252	1,381
32 " ..	126	126	252	919	1,045	1,171
33 " ..	127	110	237	694	804	931
34 " ..	99	82	181	563	645	744
35 " ..	110	80	190	478	558	668
36 " ..	81	49	130	359	408	489
37 " ..	83	43	126	302	345	428
38 " ..	83	28	116	245	273	361
39 " ..	60	28	88	175	203	263
40 " ..	46	25	71	141	166	212
41 " ..	33	18	51	90	108	141
42 " ..	36	6	42	86	92	128
43 " ..	19	9	28	40	49	68
44 " ..	11	5	16	24	29	40
45 " ..	9	1	10	7	8	17
46 " ..	3	..	3	..	..	3
47 " ..	1	..	1	3	3	4
48 " ..	2	..	2	3	3	5
49 " ..	1	..	1	1	1	2
Not stated ..	5	..	5	..	..	5
Total ..	6,401	12,445	18,846	28,573	41,018	47,419

13. Interval between Birth and Registration of Birth.—Information was obtained during 1921 as to the period elapsing between birth and registration. The law relating to maternity allowances has tended to accelerate the registration of births; and during the year under review it was found that approximately 35 per cent. were registered in the first week.

INTERVAL BETWEEN BIRTH AND REGISTRATION, COMMONWEALTH, 1921.

Interval.	Nuptial Births.	Ex-nuptial Births.	Total Births.	Interval.	Nuptial Births.	Ex-nuptial Births.	Total Births.
Under 1 day	1,403	90	1,493	38 days ..	586	20	606
1 day ..	5,659	472	6,131	39 " ..	574	19	593
2 days ..	7,512	591	8,103	40 " ..	585	13	598
3 " ..	8,140	511	8,651	41 " ..	531	25	556
4 " ..	7,836	359	8,195	42 " ..	482	22	504
5 " ..	7,834	281	8,115	43 " ..	408	18	426
6 " ..	7,059	262	7,321	44 " ..	379	13	392
7 " ..	6,428	258	6,686	45 " ..	322	15	337
8 " ..	5,911	228	6,139	46 " ..	312	15	327
9 " ..	5,252	148	5,400	47 " ..	303	18	321
10 " ..	5,051	218	5,269	48 " ..	285	8	293
11 " ..	4,870	238	5,108	49 " ..	263	21	284
12 " ..	4,763	239	5,002	50 " ..	233	9	242
13 " ..	4,603	247	4,850	51 " ..	228	10	238
14 " ..	4,001	216	4,217	52 " ..	227	10	237
15 " ..	3,426	221	3,647	53 " ..	211	13	224
16 " ..	3,071	142	3,213	54 " ..	200	10	210
17 " ..	2,710	138	2,848	55 " ..	206	11	217
18 " ..	2,476	155	2,631	56 " ..	213	12	225
19 " ..	2,337	109	2,446	57 " ..	181	7	188
20 " ..	2,062	105	2,167	58 " ..	197	12	209
21 " ..	1,944	71	2,015	59 " ..	197	20	217
22 " ..	1,740	74	1,814	60 " ..	128	6	134
23 " ..	1,677	79	1,756	61 to 69 days	301	28	329
24 " ..	1,460	62	1,522	70 " 79 "	177	14	191
25 " ..	1,402	40	1,442	80 " 89 "	109	16	125
26 " ..	1,362	57	1,419	90 " 99 "	60	9	69
27 " ..	1,189	63	1,252	100 " 109 "	27	2	29
28 " ..	1,101	45	1,146	110 " 119 "	14	6	20
29 " ..	1,067	41	1,108	120 " 129 "	13	1	14
30 " ..	980	51	1,031	130 " 139 "	11	1	12
31 " ..	1,009	35	1,044	140 " 149 "	9	1	10
32 " ..	862	49	911	150 " 159 "	13	4	17
33 " ..	794	48	842	160 " 169 "	5	4	9
34 " ..	732	32	764	170 " 179 "	6	1	7
35 " ..	716	29	745	180 " 365 "	22	2	24
36 " ..	639	26	665				
37 " ..	639	17	656				
				Total Births	129,735	6,463	136,198

The weighted average interval between the dates of birth and registration has been found to be about 13 days both for nuptial and ex-nuptial children since the granting of the maternity allowance.

2. Marriages.

1. Marriages, 1915 to 1921.—The number of marriages registered in the Commonwealth in 1920 was 51,552, the highest number ever recorded. During 1921 48,869 marriages were celebrated, and although this number did not reach the record

of 1920, it was considerably in excess of the figures for the years prior to 1920. The number of marriages in each State since 1915 is shewn below :—

TOTAL MARRIAGES, COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	Common- wealth
1915 ..	18,095	12,832	6,135	3,965	2,581	1,600	12	4	45,224
1916 ..	16,316	11,342	5,208	3,602	2,365	1,433	19	4	40,289
1917 ..	13,246	9,505	4,868	3,252	1,621	1,138	34	2	33,666
1918 ..	13,194	9,156	4,815	3,190	1,612	1,131	39	4	33,141
1919 ..	15,809	11,706	5,429	3,855	2,194	1,513	25	9	40,540
1920 ..	20,154	14,898	6,667	4,881	2,932	1,939	17	4	51,552
1921 ..	18,506	13,676	5,963	4,383	2,656	1,668	15	2	46,869

2. **Marriage Rates, 1915 to 1921.**—The number of marriages registered per thousand of mean population is shewn in the following table for the same period :—

CRUDE MARRIAGE RATE (a), COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	Common- wealth.
1915 ..	9.58	8.96	8.85	8.88	8.04	8.15	2.78	1.62	9.07
1916 ..	8.63	8.02	7.60	8.15	7.56	7.37	3.99	1.53	8.14
1917 ..	6.96	6.73	7.13	7.36	5.27	5.86	7.01	0.80	6.80
1918 ..	6.79	6.43	6.89	7.07	5.24	5.70	8.01	1.65	6.59
1919 ..	7.91	7.95	7.49	8.23	6.87	7.38	5.37	3.89	7.80
1920 ..	9.75	9.85	8.92	10.03	8.90	9.50	4.04	1.84	9.62
1921 ..	8.79	8.90	7.80	8.81	7.97	7.82	3.84	0.81	8.59

(a) Number of marriages (not persons married) per 1,000 of mean annual population.

As in some international tabulations the marriage rates are calculated per 1,000 of the unmarried population of 15 years and over, the corresponding rates have been worked out for the Commonwealth for the four last Census periods. The figures comprise in each case the Census year with the year immediately preceding and the year immediately following, and are as follows :—Years 1880–82, 48.98; years 1890–92, 45.74; years 1900–02, 42.14; years 1910–12, 50.10. These rates refer, of course, to persons married and not to marriages, as is the case in the preceding table.

3. **Marriage Rates in Various Countries.**—A comparison of the Australian marriage rate with that of European countries shews that until 1915 it was once or twice surpassed by the rate for Ontario, and equalled by the rate of some of the countries of the East of Europe, and that it was higher than the rate of the countries of Central and Western Europe, and especially than the rate of countries of the North of Europe. The following table shews that the Commonwealth, with a rate of 8.6, occupies a very favourable position in the list of countries for which recent information is available.

CRUDE MARRIAGE RATES, VARIOUS COUNTRIES.

Country.	Year.	Crude Marriage Rate.	Country.	Year.	Crude Marriage Rate.
Serbia	1911	10.3	Prussia	1912	8.0
United Kingdom ..	1919	9.9	Switzerland ..	1919	8.0
South Africa, Union of	1920	9.9	Scotland	1921	8.0
Bulgaria	1911	9.4	Western Australia ..	1921	8.0
Ontario (Canada) ..	1919	9.3	Russia (European) ..	1909	7.9
Japan	1918	9.0	Tasmania	1921	7.8
Victoria	1921	8.9	Queensland	1921	7.8
South Australia ..	1921	8.8	Germany	1913	7.7
Quebec (Canada) ..	1919	8.8	Norway	1918	7.5
New South Wales ..	1921	8.8	France	1913	7.5
New Zealand	1921	8.7	Austria	1912	7.4
Australia	1921	8.6	Sweden	1918	6.7
Hungary	1912	8.6	Ireland	1919	6.1
Rumania	1914	8.5	Finland	1919	5.7
Netherlands	1919	8.5	Chile	1914	5.2
England and Wales ..	1921	8.4	Ceylon	1920	5.2
Denmark	1919	8.3	Jamaica	1919	3.7
Spain	1919	8.1	Italy	1917	2.7
Belgium	1912	8.0			

4. Age at Marriage.—(a) The age at marriage of bridegrooms and brides will be found in the following table, the previous conjugal condition of the contracting parties being distinguished. It will be seen that no less than 1,714 males who were less than twenty-one years of age were married during 1921. The corresponding number of females was 8,635. At the other extreme there were 36 men of sixty-five years and upwards, who described themselves as bachelors, and 7 spinsters of corresponding age.

AGES AND CONJUGAL CONDITION OF PERSONS MARRIED, COMMONWEALTH, 1921.

Age at Marriage.	Bridegrooms.				Brides.			
	Bachelors.	Widowers.	Divorced.	Total.	Spinsters.	Widows.	Divorced.	Total.
12 years ..	..	..	..	..	1	..	..	1
13 .. ..	..	..	..	..	1	..	..	1
14 .. ..	..	..	..	..	10	..	..	10
15	1	..	..	1	61	..	..	61
16	7	..	..	7	321	..	..	321
17	65	..	..	65	939	..	..	939
18	197	..	..	197	1,849	1	..	1,850
19	499	..	..	499	2,538	1	..	2,539
20	945	..	..	945	2,909	4	..	2,913
21	2,555	1	1	2,557	4,947	22	3	4,972
22	2,802	3	1	2,806	4,064	24	8	4,096
23	3,350	9	2	3,361	3,764	38	12	3,814
24	3,362	14	4	3,380	3,625	50	17	3,692
25	3,643	10	5	3,658	3,209	75	25	3,309
26	3,572	30	15	3,617	2,782	80	25	2,887
27	3,202	37	15	3,254	2,309	106	33	2,448
28	3,085	50	20	3,155	1,964	97	28	2,089

AGES AND CONJUGAL CONDITION OF PERSONS MARRIED,
COMMONWEALTH, 1921—*continued.*

Age at Marriage.	Bridegrooms.				Brides.			
	Bachelors.	Widowers.	Divorced.	Total.	Spinsters.	Widows.	Divorced.	Total.
29 years ..	2,545	55	31	2,631	1,516	112	38	1,666
30 " ..	2,214	71	22	2,307	1,238	121	34	1,393
31 " ..	1,800	87	17	1,904	940	102	44	1,086
32 " ..	1,531	88	19	1,638	807	125	39	971
33 " ..	1,281	112	31	1,424	658	105	30	793
34 " ..	1,039	87	28	1,154	485	101	32	618
35 " ..	899	90	16	1,005	430	105	28	563
36 " ..	738	97	29	864	328	100	26	454
37 " ..	591	86	26	703	271	102	17	390
38 " ..	553	109	31	693	232	97	24	353
39 " ..	447	97	28	572	227	102	14	343
40 " ..	337	110	21	468	192	96	17	305
41 " ..	269	86	23	378	111	67	15	193
42 " ..	266	92	18	376	124	79	10	213
43 " ..	217	85	19	321	108	64	8	180
44 " ..	167	70	11	248	94	62	7	163
45 " ..	176	69	15	260	85	63	9	157
46 " ..	141	80	17	238	63	58	5	126
47 " ..	118	66	9	193	66	50	6	122
48 " ..	110	79	9	198	39	64	7	110
49 " ..	92	80	10	182	25	50	4	79
50 " ..	80	79	6	165	28	45	4	77
51 " ..	66	50	7	123	22	26	1	49
52 " ..	67	75	5	147	25	36	2	63
53 " ..	34	67	13	114	23	35	1	59
54 " ..	38	55	9	102	14	26	3	43
55 " ..	22	73	1	96	7	26	2	35
56 " ..	32	61	4	97	11	24	1	36
57 " ..	27	52	3	82	8	22	3	33
58 " ..	33	61	5	99	8	25	..	33
59 " ..	20	34	4	58	6	28	..	34
60 " ..	11	66	2	79	6	29	..	35
61 " ..	10	33	2	45	4	9	..	13
62 " ..	14	35	1	50	3	12	..	15
63 " ..	7	29	1	37	3	16	..	19
64 " ..	2	26	2	30	3	17	..	20
65 " ..	9	49	2	60	3	9	..	12
66 " ..	5	32	1	38	1	14	..	15
67 " ..	3	23	..	26	..	9	1	10
68 " ..	5	17	1	23	1	8	..	9
69 " ..	3	18	..	21	1	6	..	7
70 " ..	3	20	..	23	..	4	..	4
71 " ..	3	11	..	14	..	2	..	2
72 " ..	..	10	..	10	1	5	..	6
73 " ..	..	8	..	8	..	1	..	1
74 " ..	1	8	..	9	..	3	..	3
75 " ..	1	15	..	16	..	1	..	1
76 " ..	1	7	..	8	..	3	..	3
77 " ..	..	3	..	3	..	1	..	1
78 " ..	..	5	..	5	..	..	..	..
79 " ..	..	6	..	6	..	2	..	2
80 " ..	..	1	..	1	..	1	..	1
81 " ..	2	1	..	3	..	..	..	..
84 " ..	..	1	..	1	..	1	..	1
85 " ..	..	3	..	3	..	..	..	..
86 " ..	..	1	..	1	..	..	..	..
89 " ..	..	1	..	1	..	..	..	..
93 " ..	..	1	..	1	..	..	..	..
Not stated	4	1	..	5	6	1	..	7
Total	43,319	2,988	562	46,869	43,516	2,770	583	46,869

(b) The relative ages of bridegrooms and brides are shewn for single years in "Bulletin of Population and Vital Statistics, No. 39"; a condensation into age-groups of five years is here given:—

RELATIVE AGES OF PERSONS MARRIED, COMMONWEALTH, 1921.

Ages.	Total Bride- grooms.	Ages of Brides.								
		Under 15.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 and upwards.	Not stated.
Ages of Bridegrooms.										
Under 20 ..	789	2	538	212	17	..	..	..	..	..
20 to 24 ..	13,049	5	3,120	8,116	1,600	171	23	7	1	1
25 to 29 ..	16,315	2	1,473	7,685	5,857	1,076	170	40	12	..
30 to 34 ..	8,427	1	406	2,513	3,132	1,825	438	93	19	..
35 to 39 ..	3,837	1	124	683	1,198	984	616	171	60	..
40 to 44 ..	1,791	1	26	178	354	460	410	255	97	1
45 to 49 ..	1,071	..	15	57	153	201	232	199	213	1
50 to 54 ..	651	..	5	25	55	81	112	144	228	1
55 to 59 ..	432	..	2	12	18	40	54	82	224	..
60 to 64 ..	241	..	..	..	10	14	19	41	157	..
65 and upwards ..	281	..	1	4	5	9	15	22	225	..
Not stated ..	5	..	..	2	..	..	..	..	..	3
Total Brides ..	46,869	12	5,710	19,487	12,399	4,861	2,103	1,054	1,236	7

5. Previous Conjugal Condition.—In a previous table the total number of bachelors and spinsters, widowed and divorced persons, who were married during the year 1921, was shewn. In the following table the relative conjugal condition of the contracting parties is given:—

RELATIVE CONJUGAL CONDITION OF PERSONS MARRIED, COMMONWEALTH, 1921.

Conjugal Condition.		Total Bridegrooms.	Brides.		
			Spinsters.	Widows.	Divorced.
Bridegrooms	{ Bachelors ..	43,319	41,086	1,795	438
	{ Widowers ..	2,988	1,988	892	108
	{ Divorced ..	562	442	83	37
Total Brides ..		46,869	43,516	2,770	583

6. Birthplaces of Persons Married.—Information as to the birthplaces of persons who were married in 1921 was not obtained in the State of Western Australia; the following figures refer, therefore, only to New South Wales, Victoria, Queensland, South Australia, Tasmania, the Northern Territory and Federal Territory. As might

be expected, there were more brides than bridegrooms who were natives of the Commonwealth. In "Bulletin No. 39, Commonwealth Demography," the relative birth-places of bridegrooms and brides will be found tabulated.

BIRTHPLACES OF PERSONS MARRIED, COMMONWEALTH (a), 1921.

Birthplaces.	Bridegrooms.	Brides.	Birthplaces.	Bridegrooms.	Brides.
AUSTRALASIA—			ASIA—continued.		
New South Wales ..	14,545	15,873	Java .. ..	..	2
Victoria	12,720	12,888	Philippine Islands ..	2	..
Queensland	4,596	5,180	Syria	16	5
South Australia ..	4,033	4,047	AFRICA—		
Western Australia ..	155	205	Mauritius	4	1
Tasmania	1,862	1,935	Union of South Africa	52	38
Northern Territory ..	11	9	Other African British Possessions ..	2	..
Federal Territory ..	3	..	Egypt	2	5
New Zealand	405	280	Other African Countries	1	..
EUROPE—			AMERICA—		
England	3,495	2,425	Canada	45	11
Wales	95	63	Jamaica	1	1
Scotland	867	656	Newfoundland ..	2	..
Ireland	470	281	Other American British Possessions ..	5	4
Isle of Man	5	3	Argentine Republic ..	3	3
Other European Countries	25	11	Brazil	1	1
Austria-Hungary ..	14	5	Chile	1	1
Belgium	4	6	Mexico .. ..	..	1
Denmark	48	8	United States ..	90	25
France	25	19	Other American Countries ..	6	4
Germany	114	48	POLYNESIA—		
Greece	48	16	Fiji	8	10
Italy	76	36	Papua	1	1
Netherlands	21	4	New Caledonia ..	6	11
Norway	26	4	New Hebrides ..	4	1
Russia	81	19	Samoa	1	..
Spain	13	3	Other Polynesian Islands	2	..
Sweden	50	3	South Sea Islands (so described) ..	5	1
Switzerland	20	7	At sea	18	7
Other European Countries ..	6	5	Not stated	4	12
ASIA—			Total		
British India	46	20		44,213	44,213
Ceylon	8	1			
Straits Settlements	1	2			
Other Asiatic British Possessions ..	4	1			
China	35	5			
Japan	4	..			

(a) Exclusive of Western Australia.

7. Occupations and Ages of Bridegrooms.—A tabulation has been made of the occupations and ages of all males married in the Commonwealth. In "Bulletin No. 39" the 1921 tabulation is shewn for orders of occupations; here it is repeated in an abridged form. The average ages of the persons falling under those twenty-eight subdivisions were determined, and it appears that, apart from the Indefinite class, which consists chiefly of persons who have retired from business and who are living on their own means, and where a high average age may naturally be expected, the average age ranges from 27.54 among those engaged in the manufacture of gas, electricity and other forms of energy to 32.66 years in the 'Pastoral class.' The results obtained are shewn in the following table:

OCCUPATIONS AND AGES OF BRIDEGROOMS, COMMONWEALTH, 1921.

Ages at Marriage.	Professional.		Domestic.		Commercial.							Transport and Communication.			
	Government, Defence, and Law.	Others.	Board and Lodging.	Others.	Property and Finance.	Art, Mechanic, and Textile Products.	Food and Drinks.	Animal and Vegetable Substances.	Fuel, Light, and Metals.	Merchants and Dealers.	Others.	Railways.	Roads and Trams.	Seas and Rivers.	Others.
15 years..
16 "
17 "
18 "
19 "
20 "
21 "
22 "
23 "
24 "
25 "
26 "
27 "
28 "
29 "
30 "
31 "
32 "
33 "
34 "
35 to 39..
40 " 44..
45 " 49..
50 and over
Not stated
Total ..	1,085	1,778	430	443	621	408	1,626	169	115	1,055	4,323	1,607	2,181	792	531
Average age—															
year 1921	29.93	31.02	32.48	30.14	30.94	31.21	28.84	32.25	32.00	32.19	29.45	29.12	28.19	31.27	28.47

Ages at Marriage.	Manufacturing.								Primary Producers.				
	Art and Mechanic Productions.	Textiles and Flours Materials.	Food and Drinks.	Animal and Vegetable Substances.	Metals and Minerals.	Fuel, Light, and Energy.	Building and Construction.	Others.	Agricultural.	Pastoral.	Mining and Quarrying.	Others.	Indefinite.
15 years..
16 "
17 "
18 "
19 "
20 "
21 "
22 "
23 "
24 "
25 "
26 "
27 "
28 "
29 "
30 "
31 "
32 "
33 "
34 "
35 to 39..
40 " 44..
45 " 49..
50 and over
Not stated
Total ..	2,996	860	647	234	1,579	513	2,656	9,249	7,951	1,631	875	391	123
Average age—													
year 1921	28.58	28.81	28.56	28.19	27.96	27.54	29.63	29.20	30.49	32.66	30.42	29.35	41.63

The age at marriage of brides has remained fairly stationary during the period at an average of about 26 years. The figures for the seven years are:—1915, 25.75 years; 1916, 26.07 years; 1917, 26.22 years; 1918, 26.11 years; 1919, 25.77 years; 26.11 years in 1920; and 26.16 in 1921. For the five years 1907–11 the average age was 25.70 years, compared with 25.92 years for the five years 1912–16, and 26.07 for the five years 1917–21. As the average age of all bridegrooms during 1921 was 29.74 years, it follows that brides are generally speaking rather less than three years and one-half younger than bridegrooms.

8. Fertility of Marriages.—The quotient obtained by division of the nuptial births registered, say during the five years 1917 to 1921, by the number of marriages registered during the five years 1912 to 1916, i.e., the period antecedent by five years to the period of the births, has been called the "fertility of marriages." This works out at 3.06, or in other words, the number of children to be expected from every marriage in the Commonwealth is about three. This method, while not professing any claim to accuracy, generally furnishes results which agree fairly well with those found by more elaborate and careful investigation. For the period 1907–11 the result was 3.43; for the year 1914, 3.87; for the year 1915, 3.50; for the year 1916, 3.17; for the year 1917, 2.93; for the year 1918, 3.02; for the year 1919, 2.86; and for the year 1920, 3.05.

9. Registration of Marriages.—In all the States of the Commonwealth marriages may be celebrated either by ministers of religion whose names are registered for that purpose with the Registrar-General, or by certain civil officers—in most cases district registrars. The great majority of marriages in every State are celebrated by ministers of religion. The proportions so celebrated in 1921 were: New South Wales, 95.13 per cent.; Victoria, 97.16 per cent.; Queensland, 97.20 per cent.; South Australia, 96.46 per cent.; Western Australia, 84.15 per cent.; and Tasmania, 97.60 per cent., the percentage for the Commonwealth being 95.57. The registered ministers in 1921 belonged to more than forty different denominations, some of which, however, can hardly be regarded as having any valid existence. A number of these have been omitted from the tabulation, and are bracketed under the heading "Other Christians." The figures for 1921 are shewn in the following table:—

MARRIAGES IN EACH DENOMINATION, COMMONWEALTH, 1921.

Denomination.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	N. Ter.	Fed. Ter.	Com'wealth.
Church of England ..	7,951	3,980	1,796	1,149	981	635	5	2	16,499
Roman Catholic Church..	3,700	2,359	1,243	530	382	241	3	..	8,458
Presbyterian Church of Australia ..	2,552	2,717	898	232	217	190	2	..	6,808
Methodist Church ..	2,318	1,919	987	1,370	435	288	3	..	7,320
Congregational Church ..	425	992	222	196	108	58	..	..	2,001
Baptist Church ..	265	599	174	246	56	121	..	..	1,461
Church of Christ ..	154	353	45	246	21	46	..	..	870
Lutheran Church ..	33	50	131	187	..	..	..	..	401
Greek Orthodox Church..	12	5	..	..	6	..	..	..	23
Unitarian Church ..	14	3	..	4	..	..	..	..	21
Salvation Army ..	72	48	43	41	14	9	..	..	227
Seventh-Day Adventists..	16	15	12	5	3	6	..	..	57
Other Christians ..	35	198	238	18	4	33	1	..	527
Hebrew ..	51	44	5	4	8	1	..	..	113
Registrar's Office ..	901	389	167	155	421	40	1	..	2,074
Unspecified ..	7	..	2	..	..	..	..	..	9
Total ..	18,506	13,676	5,963	4,383	2,656	1,668	15	2	46,869

10. Mark Signatures.—The marriage registers afford some clue, even if an imperfect one, to the illiteracy of the adult population, since a small and constantly diminishing percentage of bridegrooms and brides sign the registers with marks.

(i) *Males and Females, 1915 to 1921.* The percentage of mark signatures by males and females during the last seven years have been very even, with a slight preponderance in the case of males :—

PERCENTAGE OF MARK SIGNATURES AT MARRIAGE, COMMONWEALTH,
1915 TO 1921.

Year.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Male	0.27	0.37	0.37	0.33	0.27	0.18	0.16
Female	0.27	0.32	0.31	0.29	0.27	0.14	0.18

(ii) *Mark Signatures in Commonwealth States, 1915 to 1921.* The following table shews that there has been a marked decrease in every State over the whole period :—

PERCENTAGE OF MARK SIGNATURES AT MARRIAGE, COMMONWEALTH,
1915 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth.
1915 ..	0.25	0.11	0.26	0.32	0.43	1.47	..	..	0.27
1916 ..	0.41	0.18	0.32	0.35	0.32	0.98	10.53	..	0.35
1917 ..	0.41	0.16	0.32	0.25	0.49	1.14	7.35	..	0.34
1918 ..	0.37	0.13	0.12	0.34	0.43	1.41	5.13	..	0.31
1919 ..	0.29	0.18	0.17	0.25	0.32	0.89	16.00	..	0.27
1920 ..	0.17	0.09	0.04	0.11	0.31	0.90	5.88	..	0.16
1921 ..	0.21	0.09	0.11	0.13	0.24	0.51	6.67	..	0.17

A complete disappearance of mark signatures is hardly to be expected, for the available information tends to shew that about two-thirds of those who sign with marks are natives of their respective States, who apparently have not made use of the advantages offered to them by the State schools.

§ 3. Deaths.

1. *Male and Female Deaths, 1915 to 1921.*—The total number of deaths registered in the Commonwealth from 1915 to 1921 inclusive, gives an annual average of 30,652 males and 23,424 females, the details being as follow :—

MALE DEATHS, COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth.
1915 ..	11,439	8,860	4,695	2,587	1,887	1,083	89	14	30,654
1916 ..	11,500	8,901	4,653	2,721	1,981	1,148	108	6	31,018
1917 ..	10,445	7,952	4,027	2,398	1,802	926	52	7	27,609
1918 ..	10,914	8,079	4,359	2,430	1,774	959	66	4	28,585
1919 ..	15,256	10,508	5,337	2,927	2,340	1,175	82	7	37,632
1920 ..	12,088	9,059	4,824	2,814	2,161	1,055	48	4	32,053
1921 ..	11,490	8,662	4,397	2,655	2,209	1,166	70	3	30,652
Rate (a), 1921	10.70	11.43	10.90	10.64	12.45	10.83	24.67	2.04	11.05

(a) Number of deaths per 1,000 of mean population.

FEMALE DEATHS, COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth.
1915 ..	8,146	6,963	2,864	2,107	1,105	932	8	3	22,128
1916 ..	8,346	7,588	2,861	2,356	1,104	908	14	2	23,179
1917 ..	7,496	6,603	2,528	1,967	967	842	11	6	20,420
1918 ..	7,902	7,098	2,792	1,960	1,059	843	8	2	21,664
1919 ..	11,088	8,862	3,519	2,548	1,250	1,017	3	11	28,298
1920 ..	8,846	7,773	3,123	2,269	1,227	981	15	2	24,236
1921 ..	8,536	7,503	2,745	2,327	1,271	1,031	10	1	23,424
Rate (a), 1921	8.26	9.62	7.60	9.38	8.15	9.75	9.33	0.98	8.72

(a) Number of deaths per 1,000 of mean population.

2. Male and Female Death Rates, 1921.—The crude male and female death rates for 1921 only are given in the last line of the preceding tables. Western Australia has the highest rate for males, and Tasmania for females, while South Australia has the lowest male, and Queensland the lowest female death rate. The rates for the two Territories are based on very small numbers, and comparisons with the States would be misleading.

Owing to differences in the age constitution of the six States, the crude rates are not, however, strictly comparable. A more satisfactory rate is furnished by the "Index of Mortality" (see para. 14). The death rates for males and females in each State in five-year age groups for the three years 1910-1912, that is, for the census year and for the year immediately preceding and following, are shown on page 105.

3. Death Rates of Various Countries.—A comparison with foreign States is, for the same reason, apt to shew the Commonwealth in too favourable a light, but even if an allowance for the different age constitution were made, it would still be found occupying a very enviable position. The following table gives particulars of the crude death rates of various countries for the latest available years:—

DEATH RATES (a) OF VARIOUS COUNTRIES.

Country.	Year.	Crude Death Rate.	Country.	Year.	Crude Death Rate.
New Zealand ..	1921	8.7	Ireland	1921	14.2
Queensland ..	1921	9.3	Belgium	1912	14.8
New South Wales ..	1921	9.5	Prussia	1913	14.9
Australia ..	1921	9.9	Germany	1913	15.0
South Australia ..	1921	10.0	Norway	1918	16.4
Tasmania ..	1921	10.3	France	1913	17.7
Western Australia ..	1921	10.4	Sweden	1918	17.9
Victoria ..	1921	10.5	Italy	1917	18.7
South Africa, Union of (Whites) ..	1920	11.1	Finland	1919	18.9
Ontario (Canada) ..	1919	11.9	Austria	1912	20.5
England and Wales ..	1921	12.1	Serbia	1912	21.1
United Kingdom ..	1921	12.5	Bulgaria	1911	21.5
United States (Regis- tration area) ..	1919	12.9	Jamaica	1919	22.2
Denmark ..	1919	13.1	Spain	1919	23.3
Netherlands ..	1919	13.2	Hungary	1912	23.3
Scotland ..	1921	13.6	Rumania	1914	23.8
Quebec (Canada) ..	1919	13.7	Japan	1918	26.8
Switzerland ..	1919	14.2	Chile	1914	27.8
			Russia, European ..	1909	28.9
			Ceylon	1920	29.6

(a) Number of deaths per 1,000 of mean population.

4. **Total Deaths, 1915 to 1921.**—The total number of deaths in each of the Commonwealth States during the seven years 1915 to 1921 is shewn below :—

TOTAL DEATHS, COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth.
1915	19,585	15,823	7,559	4,694	2,992	2,015	97	17	52,782
1916	19,846	16,489	7,514	5,077	3,085	2,056	122	8	54,197
1917	17,941	14,555	6,555	4,365	2,769	1,768	63	13	48,029
1918	18,816	15,177	7,151	4,390	2,833	1,802	74	6	50,249
1919	26,344	19,370	8,856	5,475	3,590	2,192	85	18	65,930
1920	20,934	16,832	7,947	5,083	3,388	2,036	63	6	56,289
1921	20,026	16,165	7,142	4,982	3,480	2,197	80	4	54,076

5. **Crude Death Rates, 1915 to 1921.**—The death rate for the Commonwealth during the period under review reached its maximum in 1919 owing to the outbreak of influenza.

CRUDE DEATH RATE (a), COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Terr.	C'wealth
1915	10.37	11.05	10.90	10.51	9.32	10.27	22.43	6.89	10.59
1916	10.49	11.66	10.96	11.49	9.86	10.58	25.64	3.06	10.95
1917	9.43	10.31	9.60	9.87	9.05	9.10	12.97	5.21	9.71
1918	9.69	10.66	10.23	9.72	9.20	9.09	15.19	2.47	9.99
1919	13.18	13.15	12.22	11.69	11.24	10.69	18.26	7.79	12.69
1920	10.13	11.13	10.63	10.44	10.28	9.67	14.95	2.76	10.50
1921	9.51	10.52	9.34	10.02	10.44	10.30	20.47	1.61	9.91

(a) Number of deaths per 1,000 of mean population for year.

6. **Male and Female Death Rates, 1915 to 1921.**—The large death rate in 1919 was due, as already stated, to an exceptional cause. The rates in the period 1915–21, excluding 1919, were remarkably steady, averaging about 11.5 per 1,000 for males, and 9 per 1,000 for females.

MALE AND FEMALE DEATH RATES (a), COMMONWEALTH, 1915 TO 1921.

Year.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Male rate	11.95	12.48	11.29	11.50	14.40	11.75	11.05
Female rate	9.14	9.41	8.16	8.51	10.5	9.20	8.72
Crude total rate	10.59	10.95	9.71	9.99	12.69	10.50	9.91

(a) Number of deaths per 1,000 of mean population.

7. **Infantile Death Rate.**—(i) *Deaths and Death Rates of Male and Female Infants, 1915 to 1921.* While the infantile mortality rate for 1921 shews an improvement over that for 1920, it is still much higher than the rate for 1917. In the following table, which shews both the total number of deaths of children under one year and the rate per thousand births since 1915, males and females are distinguished. The universal experience that during the first few years of life the excess of male births tends to disappear as a consequence of the higher death rate of male infants, is confirmed by the fact that out of 471,121 male infants born from 1915 to 1921, 34,022 died during their first year of life, while of 445,774 female infants the number who died was only 25,805 :—

**NUMBER OF INFANTILE DEATHS AND RATES OF INFANTILE MORTALITY,
COMMONWEALTH, 1915 TO 1921.**

Year	Registered Deaths under one year.			Rate of Infantile Mortality (a).		
	Males.	Females.	Total.	Males.	Females.	Total.
1915	5,127	3,980	9,107	74.25	60.47	67.52
1916	5,186	4,057	9,243	76.82	63.47	70.33
1917	4,232	3,034	7,266	63.27	48.10	55.91
1918	4,178	3,186	7,364	64.82	51.99	58.57
1919	4,802	3,662	8,464	76.31	61.69	69.21
1920	5,386	4,045	9,431	76.66	61.15	69.14
1921	5,111	3,841	8,952	72.97	58.06	65.73

(a) Number of deaths under 1 year per 1,000 births registered.

(ii) *Infantile Mortality, 1915 to 1921.* Divided among the States and Territories the rates of infantile mortality during the last seven years were as follows :—

RATES (a) OF INFANTILE MORTALITY, COMMONWEALTH, 1915 TO 1921.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	North. Terr.	Federal Territory.	Com'- wealth.
1915 ..	67.67	68.78	64.33	67.04	66.54	72.37	65.57	42.55	67.52
1916 ..	67.15	74.63	70.27	73.21	66.22	74.97	40.54	15.87	70.33
1917 ..	56.93	56.82	53.87	53.06	57.09	52.27	43.48	45.45	55.91
1918 ..	59.02	61.75	56.66	51.25	57.13	60.80	28.57	20.41	58.57
1919 ..	71.83	67.90	71.88	64.01	61.12	64.97	66.04	111.11	69.21
1920 ..	69.41	73.70	63.24	67.34	66.02	65.51	190.48	66.67	69.14
1921 ..	62.56	72.55	54.16	65.48	78.26	78.02	63.29	74.07	65.73

(a) Number of deaths under 1 year per 1,000 births registered.

The movement has been irregular. In 1917 a rate of 55.91 was recorded, but since that year it has not been so favourable. The rate for 1921 is only slightly less than that for 1915.

A considerable decrease is shewn by every State during 1917, and the rates for that year are the lowest on record in every State and in the Commonwealth as a whole, whilst only a very slight increase was registered in 1918.

The total number of births, and of deaths of children under one year of age, and the average rate of infantile mortality for the seven years 1915 to 1921 are shewn in the following table for each of the fifty-nine districts for which the vital statistics of the Commonwealth have been tabulated during that period. To afford a better idea of the geographical position of the districts, the name of a town situated in a fairly central part of each district has been added. The figures for the Federal Territory and for Lord Howe Island are included for the sake of completeness, but are too small to be used in comparison with others.

INFANTILE MORTALITY FOR THE SEVEN YEARS 1915 TO 1921.

States and Territories.	Districts.	Towns.	Total Births, 1915-21.	Total Deaths of Children under one year, 1915-21.	Average Infantile Mortality per 1,000 Births, 1915-21.
New South Wales ..	Metropolitan ..	Sydney ..	148,313	10,086	68.00
" ..	North Coast ..	Grafton ..	29,737	1,483	49.87
" ..	Lower Hunter ..	Newcastle ..	38,860	2,730	68.03
" ..	Cumberland ..	Parramatta ..	19,515	1,123	57.55
" ..	South Coast ..	Nowra ..	14,666	844	57.55
" ..	Northern Tableland ..	Armidale ..	18,790	1,125	59.87
" ..	Central Tableland ..	Bathurst ..	23,977	1,723	71.86
" ..	Southern Tableland ..	Goulburn ..	18,864	1,205	63.88
" ..	North-Western Slope ..	Moree ..	7,677	464	60.44
" ..	Central-Western Slope ..	Dubbo ..	13,196	824	62.44
" ..	South-Western Slope ..	Temora ..	14,223	683	48.02
" ..	Riverina ..	Hay ..	8,133	471	57.91
" ..	Plains East of Darling ..	Cobar ..	2,600	208	80.00
" ..	Trans-Darling Plains ..	Broken Hill ..	6,921	736	106.34
" ..	Lord Howe Island ..	— ..	6	1	163.67
Victoria ..	Metropolitan ..	Melbourne ..	123,526	9,526	77.12
" ..	Central ..	Geelong ..	22,255	1,401	62.95
" ..	North-Central ..	Kyneton ..	9,210	531	57.65
" ..	Western ..	Hamilton ..	24,572	1,442	58.68
" ..	Wimmera ..	Horsham ..	9,894	563	56.90
" ..	Mallee ..	Ultima ..	7,366	488	66.25
" ..	Northern ..	Rochester ..	22,279	1,368	61.40
" ..	North-Eastern ..	Beechworth ..	6,971	330	47.34
" ..	Gippsland ..	Sale ..	11,224	540	48.11
Queensland ..	Metropolitan ..	Brisbane ..	40,563	2,945	72.60
" ..	Moreton ..	Ipswich ..	16,726	847	50.64
" ..	Wide Bay ..	Maryborough ..	16,548	884	53.42
" ..	Port Curtis ..	Rockhampton ..	10,950	752	68.68
" ..	Edgecumbe ..	Townsville ..	13,837	773	55.86
" ..	Rockingham ..	Cairns ..	7,175	345	48.08
" ..	York Peninsula ..	Cooktown ..	1,217	82	67.38
" ..	Carpentaria ..	Croydon ..	2,558	211	82.49
" ..	Central-Western ..	Winton ..	761	73	95.93
" ..	South-Western ..	Charleville ..	1,816	145	79.84
" ..	Central ..	Blackall ..	4,265	261	61.20
" ..	Maranoa ..	Roma ..	2,649	162	61.15
" ..	Downs ..	Toowoomba ..	18,617	1,045	56.13
South Australia ..	Metropolitan ..	Adelaide ..	40,405	2,823	69.87
" ..	Central ..	Gawler ..	16,640	812	49.30
" ..	Lower North ..	Redruth ..	12,867	925	71.89
" ..	Upper North ..	Port Augusta ..	3,950	259	65.57
" ..	South-Eastern ..	Mount Gambier ..	4,211	193	45.83
" ..	Western ..	Port Lincoln ..	3,327	132	39.68
Western Australia ..	Metropolitan ..	Perth ..	26,934	1,948	72.32
" ..	Northern Agricultural ..	Geraldton ..	7,979	454	56.90
" ..	South-Western ..	Katanning ..	12,602	592	46.98
" ..	Eastern Goldfields ..	Kalgoorlie ..	6,289	478	76.01
" ..	Northern Goldfields ..	Pilbara ..	1,199	90	75.06
" ..	North-Western ..	Roebourne ..	258	16	62.02
" ..	Northern ..	Broome ..	200	18	90.00
Tasmania ..	Hobart ..	Hobart ..	9,954	765	76.85
" ..	Launceston ..	Launceston ..	6,083	482	79.24
" ..	North-Eastern ..	Scottsdale ..	4,096	231	56.40
" ..	North-Western ..	Stanley ..	9,788	608	62.12
" ..	Midland ..	Zeehan ..	4,170	244	58.51
" ..	South-Eastern ..	Sorell ..	3,837	222	57.86
" ..	South-Western ..	Franklin ..	1,020	66	64.71
Northern Territory ..	..	Darwin ..	557	37	66.43
Federal Territory ..	..	Canberra ..	272	12	44.12

(iii) *Infantile Mortality in Various Countries and Cities.* Compared with European and American countries, the cities and States of the Commonwealth occupy a very favourable position. It may be pointed out also in connexion with the rates hereunder, that a high birth rate is often, though not invariably, accompanied by a high infantile death rate. The figures in the subjoined tables relate to the latest years for which returns are available :—

RATE(a) OF INFANTILE MORTALITY IN VARIOUS COUNTRIES.

Country.	Year.	Rate of Infantile Mortality. (a)	Crude Birth Rate. (b)	Country.	Year.	Rate of Infantile Mortality. (a)	Crude Birth Rate. (b)
New Zealand ..	1921	48	23.3	Scotland ..	1921	90	25.2
Netherlands ..	1919	50	24.2	Denmark ..	1915	95	24.2
Queensland ..	1921	54	26.6	Ontario (Canada)	1919	96	22.1
Norway ..	1917	54	24.4	Belgium ..	1912	120	22.6
New South Wales	1921	63	25.9	Finland ..	1919	135	19.2
South Australia	1921	65	24.1	Italy ..	1917	140	19.0
Australia ..	1921	66	25.0	Quebec (Canada)	1918	142	33.0
Victoria ..	1921	73	23.2	Prussia ..	1912	146	28.9
Sweden ..	1915	76	20.3	Serbia ..	1911	146	36.2
Ireland ..	1921	76	20.2	Germany ..	1913	151	27.5
Tasmania ..	1921	78	27.0	Bulgaria ..	1911	156	40.2
Western Australia	1921	78	23.4	Jamaica ..	1919	161	34.1
France ..	1912	78	19.0	Austria ..	1912	180	31.3
South Africa, Union of (Whites)	1919	82	28.9	Ceylon ..	1920	182	36.5
Switzerland ..	1919	82	18.7	Hungary ..	1912	186	36.3
England and Wales	1921	83	22.4	Rumania ..	1914	187	42.5
United Kingdom	1921	83	22.5	Japan ..	1918	189	32.2
United States (Re- gistration area)	1919	87	22.3	Spain ..	1919	192	28.3
				Russia, European	1909	248	44.0
				Chile ..	1914	286	37.0

(a) Number of deaths under 1 year per 1,000 births registered. (b) Number of births per 1,000 of mean population

RATE(a) OF INFANTILE MORTALITY IN VARIOUS CITIES.

City.	Year.	Rate of Infantile Mortality. (a)	City.	Year.	Rate of Infantile Mortality. (a).
Auckland ..	1920	48	Antwerp ..	1921	98
Amsterdam ..	1921	54	Liverpool ..	1921	105
Christiania ..	1921	54	Glasgow ..	1921	106
Zürich ..	1916	55	Aberdeen ..	1921	108
Rome ..	1915	56	Monte Video	1916	111
Stockholm ..	1921	61	Dresden ..	1921	115
Brisbane ..	1921	62	Belfast ..	1921	115
Sydney ..	1921	62	Dublin ..	1921	123
Copenhagen ..	1921	67	Munich ..	1921	126
New York ..	1921	71	Genoa ..	1916	126
Geneva ..	1916	73	Berlin ..	1921	135
Wellington ..	1920	74	Leipzig ..	1921	136
Adelaide ..	1921	74	Cologne ..	1921	140
Melbourne ..	1921	74	Chicago ..	1916	145
Hobart ..	1921	75	Vienna ..	1921	146
London ..	1921	80	Prague ..	1921	151
Perth ..	1921	81	Marseilles ..	1916	157
Birmingham	1921	82	Breslau ..	1921	170
Washington ..	1919	85	Rio de Janeiro	1912	174
Toronto ..	1917	92	Madrid ..	1915	177
Buenos Aires	1916	94	Florence ..	1916	192
Manchester ..	1921	94	Montreal ..	1911	242
Paris ..	1921	95	Petrograd ..	1912	249
Hamburg ..	1921	95	Madras ..	1921	281
Edinburgh ..	1921	96	Bombay ..	1920	556

(a) Number of deaths under 1 year per 1,000 births registered.

Information relative to the causes of death of children under one year of age will be found in paragraph 20.

8. Deaths in Age-Groups, 1915 to 1921.—A distribution into age-groups has been made of the 381,552 deaths which occurred in the Commonwealth from 1915 to 1921, and the results have been tabulated for each State. It is, however, sufficient here to show the results for the Commonwealth as a whole, which are as follows :—

DEATHS IN AGE-GROUPS, COMMONWEALTH, 1915 TO 1921.

Ages.	Males.	Females.	Total.	Percentage of Total Males.	Percentage of Total Females.	Percentage of Total.
Under 1 year ..	34,022	25,805	59,827	15.59	15.80	15.68
1 year and under 5 ..	12,361	10,699	23,060	5.66	6.55	6.04
5 years and under 20 ..	11,338	9,487	20,825	5.20	5.80	5.46
20 years and under 40	29,153	26,070	55,228	13.36	15.96	14.47
40 years and under 60	48,625	29,855	78,480	22.28	18.28	20.57
60 years and under 65	16,509	9,482	25,991	7.57	5.80	6.81
65 years and over ..	65,764	51,889	117,653	30.14	31.77	30.84
Age not stated ..	426	62	488	0.20	0.04	0.13
Total ..	218,203	163,349	381,552	100.00	100.00	100.00

9. Deaths at Single Ages and in Age-Groups, 1921.—The 54,076 deaths which were registered in the Commonwealth in the year 1921 will be found tabulated under single years, and in groups of five years for each State and Territory, in "Bulletin No. 39, Commonwealth Demography, 1921." It has been thought advisable to tabulate the deaths during the first two years of life in greater detail. The first month has, therefore, been shewn in weeks, and the twenty-three months up to the end of the second year in months. This tabulation shews that a great number of children died during the first week, the number gradually diminishing towards the end of the second year. The particulars relating to the Commonwealth are given in the following table :—

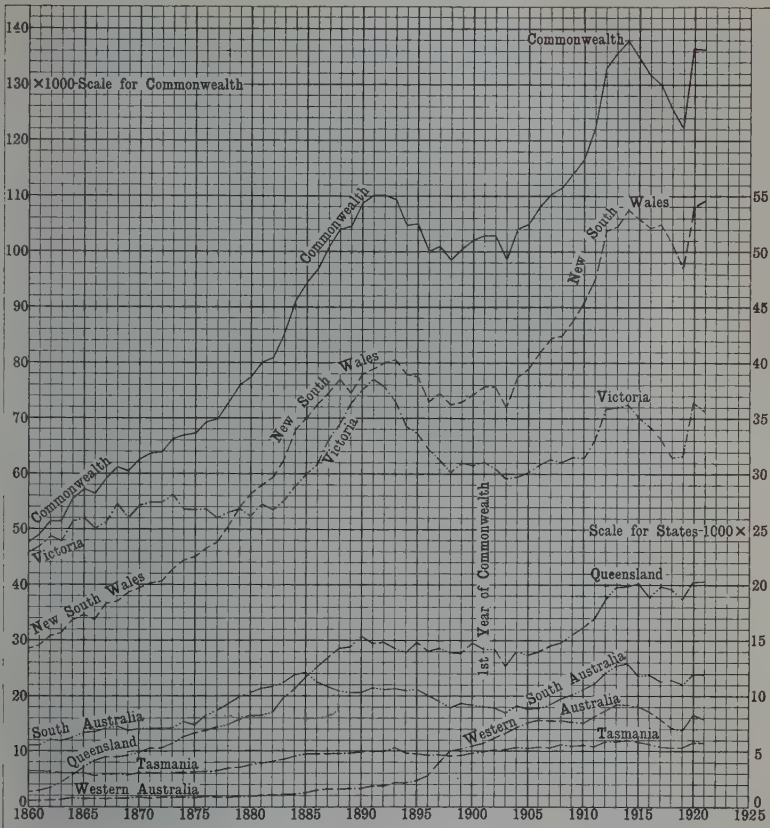
DEATHS AT SINGLE AGES AND IN AGE-GROUPS, COMMONWEALTH, 1921.

Ages.	Males.	Females.	Total.	Ages.	Males.	Females.	Total.
Under 1 week ..	1,826	1,301	3,127	16 months and under 17 ..	65	58	123
1 week and under 2 ..	303	216	519	17 " " " " 18 ..	61	43	104
2 weeks " " 3 ..	216	146	362	18 " " " " 19 ..	58	46	104
3 " " " " 4 ..	129	106	235	19 " " " " 20 ..	85	39	74
Total under 1 month ..	2,474	1,769	4,243	20 " " " " 21 ..	46	42	88
1 month and under 2 ..	464	342	806	21 " " " " 22 ..	43	39	82
2 months " " 3 ..	352	272	624	22 " " " " 23 ..	39	27	66
3 " " " " 4 ..	318	234	552	23 " " " " 24 ..	29	18	47
4 " " " " 5 ..	287	189	476	Total under 2 years ..	5,999	4,560	10,559
5 " " " " 6 ..	211	190	401	2 years ..	358	330	688
6 " " " " 7 ..	202	173	375	3 " " " " ..	249	166	415
7 " " " " 8 ..	199	141	340	4 " " " " ..	196	190	386
8 " " " " 9 ..	168	167	335	Total under 5 years ..	6,802	5,246	12,048
9 " " " " 10 ..	159	129	288	5 years ..	153	149	302
10 " " " " 11 ..	146	121	267	6 " " " " ..	137	150	287
11 " " " " 12 ..	131	114	245	7 " " " " ..	113	103	227
Total under 1 year ..	5,111	3,841	8,952	8 " " " " ..	114	81	195
12 months and under 13 ..	262	172	434	9 " " " " ..	82	78	160
13 " " " " 14 ..	87	70	157	Total 5 years and under 10	604	567	1,171
14 " " " " 15 ..	84	94	178				
15 " " " " 16 ..	79	71	150				

DEATHS AT SINGLE AGES AND IN AGE-GROUPS, 1921—continued.

Ages.			Ages.				
	Males.	Females.		Males.	Females.		
Total			Total				
10 years	85	69	154	60 years	639	301	940
11 "	116	62	178	61 "	460	256	716
12 "	88	59	147	62 "	505	301	806
13 "	81	73	154	63 "	529	333	862
14 "	93	72	165	64 "	486	318	804
Total 10 years and under 15	463	335	798	Total 60 years and under 65	2,619	1,509	4,128
15 years	74	78	152	65 years	626	370	996
16 "	99	86	185	66 "	468	290	758
17 "	118	100	218	67 "	459	294	753
18 "	118	113	231	68 "	430	322	752
19 "	111	101	212	69 "	423	280	703
Total 15 years and under 20	520	478	998	Total 65 years and under 70	2,406	1,556	3,962
20 years	115	138	253	70 years	456	343	799
21 "	148	118	266	71 "	360	270	630
22 "	147	116	263	72 "	432	325	757
23 "	139	149	288	73 "	428	340	768
24 "	157	146	303	74 "	407	335	742
Total 20 years and under 25	706	667	1,373	Total 70 years and under 75	2,083	1,613	3,696
25 years	146	166	312	75 years	432	344	776
26 "	165	162	327	76 "	413	373	786
27 "	159	189	348	77 "	394	325	719
28 "	176	183	359	78 "	402	376	778
29 "	192	194	386	79 "	354	299	653
Total 25 years and under 30	838	894	1,732	Total 75 years and under 80	1,995	1,717	3,712
30 years	182	183	365	80 years	394	357	751
31 "	211	142	359	81 "	302	241	543
32 "	204	197	401	82 "	286	256	542
33 "	211	213	424	83 "	229	258	487
34 "	195	201	396	84 "	249	241	490
Total 30 years and under 35	1,003	942	1,945	Total 80 years and under 85	1,460	1,353	2,813
35 years	249	180	429	85 years	269	236	505
36 "	213	199	412	86 "	188	193	381
37 "	214	212	426	87 "	175	174	349
38 "	229	238	467	88 "	153	141	294
39 "	256	195	451	89 "	119	98	217
Total 35 years and under 40	1,161	1,024	2,185	Total 85 years and under 90	904	842	1,746
40 years	278	198	476	90 years	98	104	202
41 "	206	165	371	91 "	53	59	112
42 "	260	190	450	92 "	50	59	109
43 "	266	180	446	93 "	35	53	88
44 "	236	178	414	94 "	25	33	58
Total 40 years and under 45	1,246	911	2,157	Total 90 years and under 95	261	308	569
45 years	315	194	509	95 years	19	25	44
46 "	252	174	426	96 "	16	13	29
47 "	299	188	487	97 "	8	16	24
48 "	314	192	506	98 "	10	9	19
49 "	274	199	473	99 "	1	6	7
Total 45 years and under 50	1,454	947	2,401	Total 95 yrs. and under 100	54	69	123
50 years	376	235	611	100 years	6	2	8
51 "	306	185	491	101 "	4	5	9
52 "	334	238	572	102 "	1	2	3
53 "	365	213	578	103 "	1	..	1
54 "	373	262	635	104 "	1	1	2
Total 50 years and under 55	1,754	1,133	2,887	Total 100 years and over	13	10	23
55 years	378	241	617	Age not stated	81	8	89
56 "	469	273	742	Total all ages	30,652	23,424	54,076
57 "	421	253	674				
58 "	496	270	766				
59 "	463	258	721				
Total 55 years and under 60	2,225	1,295	3,520				

GRAPHS SHEWING TOTAL ANNUAL BIRTHS IN THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860 TO 1921.



(See Table page 74.)

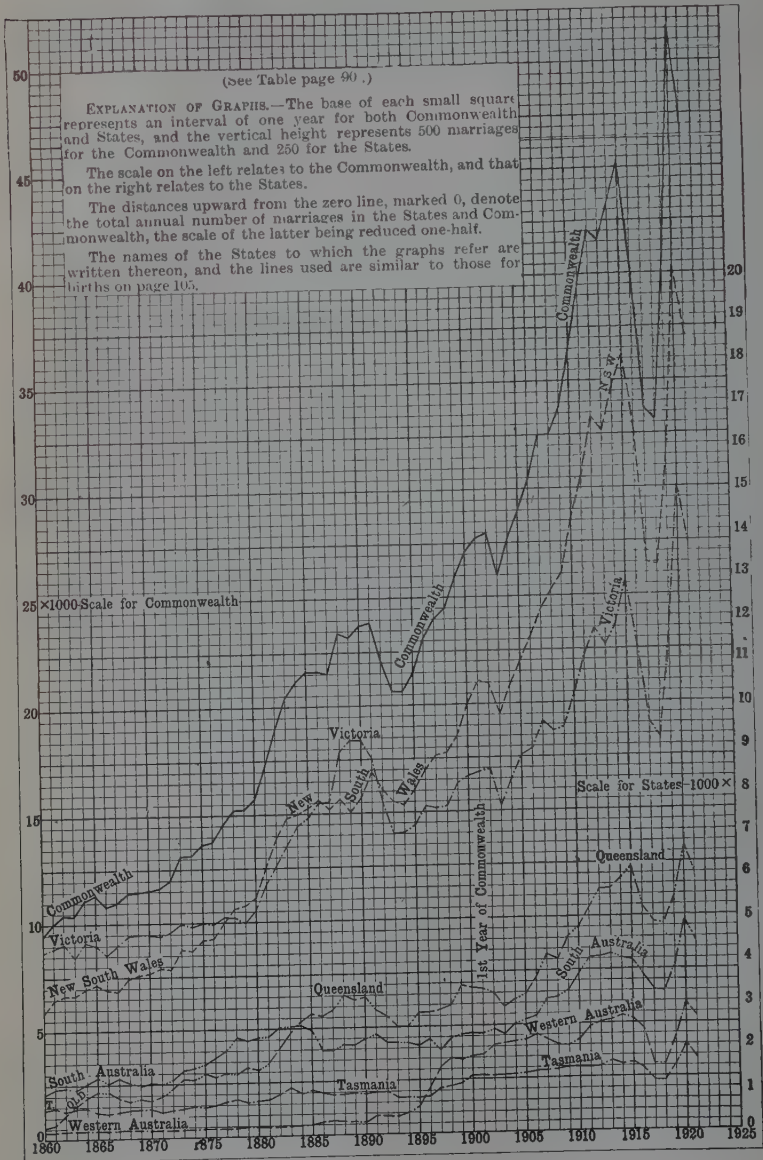
EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year for both Commonwealth and States, and the vertical height represents 2,000 persons for the Commonwealth and 1,000 for the States.

The scale on the left relates to the Commonwealth, and that on the right to the States.

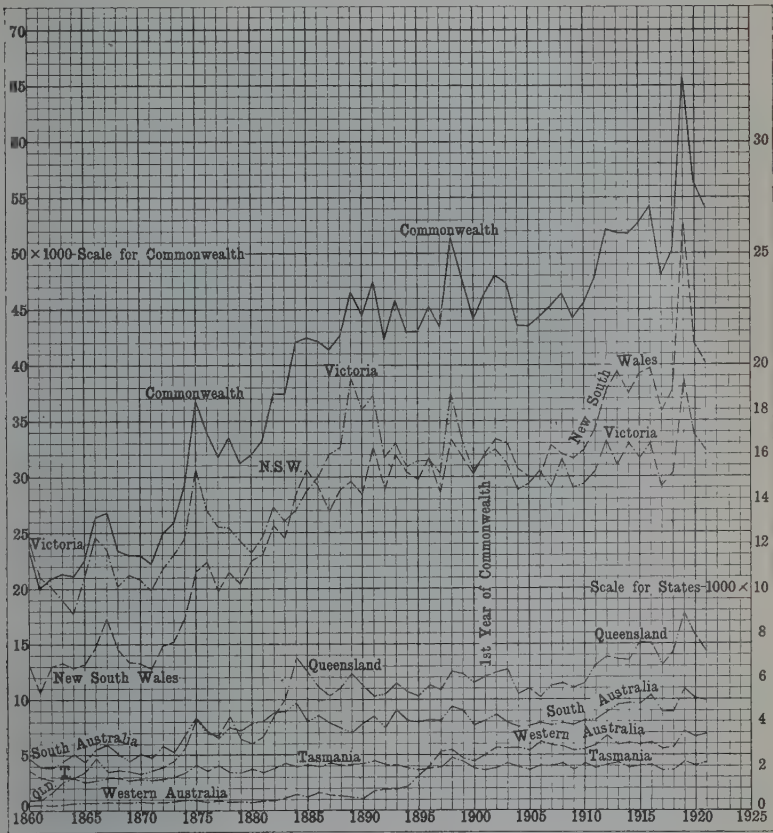
The distances upward from the common zero lines of the States and Commonwealth, marked 0, denote the total annual number of births in the States and Commonwealth, the scale of the latter being reduced one-half.

The names of the States to which the graphs refer are written thereon, and the characters of the line used are as follows:—Commonwealth, —————; New South Wales, —————; Victoria, —————; Queensland, —————; South Australia, —————; Western Australia, —————; Tasmania, —————.

GRAPHS SHEWING TOTAL ANNUAL MARRIAGES IN THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860 TO 1921.



GRAPHS SHEWING TOTAL ANNUAL DEATHS IN THE COMMONWEALTH AND STATES OF AUSTRALIA, 1860 TO 1921.



(See table on page 99.)

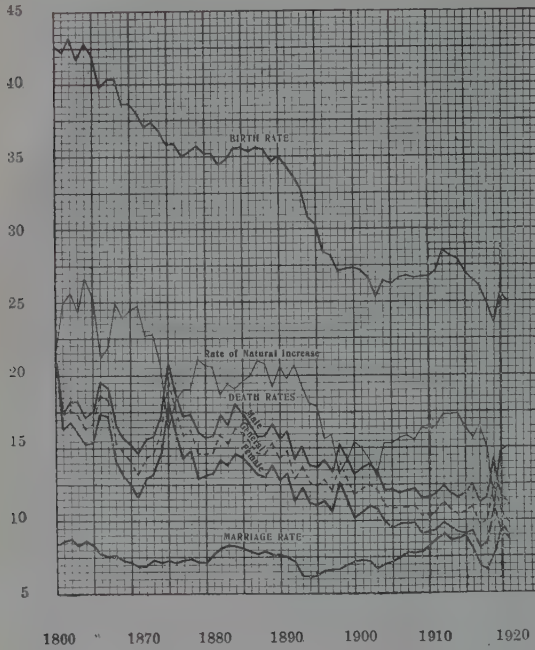
EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year for both Commonwealth and States, and the vertical height represents 1,000 persons for the Commonwealth and 500 for the States.

The scale on the left relates to the Commonwealth, and that on the right relates to the States.

The distances upwards from the common zero line for States and Commonwealth, marked 0, denote the total annual number of deaths in the States and Commonwealth, the scale of the latter being reduced one-half.

The names of the States to which the curves refer are written thereon, and the lines used are similar to those for births on page 105.

GRAPHS SHEWING GENERAL BIRTH, NATURAL INCREASE, DEATH (MALE, GENERAL, AND FEMALE) AND MARRIAGE RATES IN THE COMMONWEALTH OF AUSTRALIA, 1860 TO 1921.



(See pages 75, 90, and 99.)

EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height, according to the character of the curve, one half per thousand of the population—the basic line being five per thousand of the population.

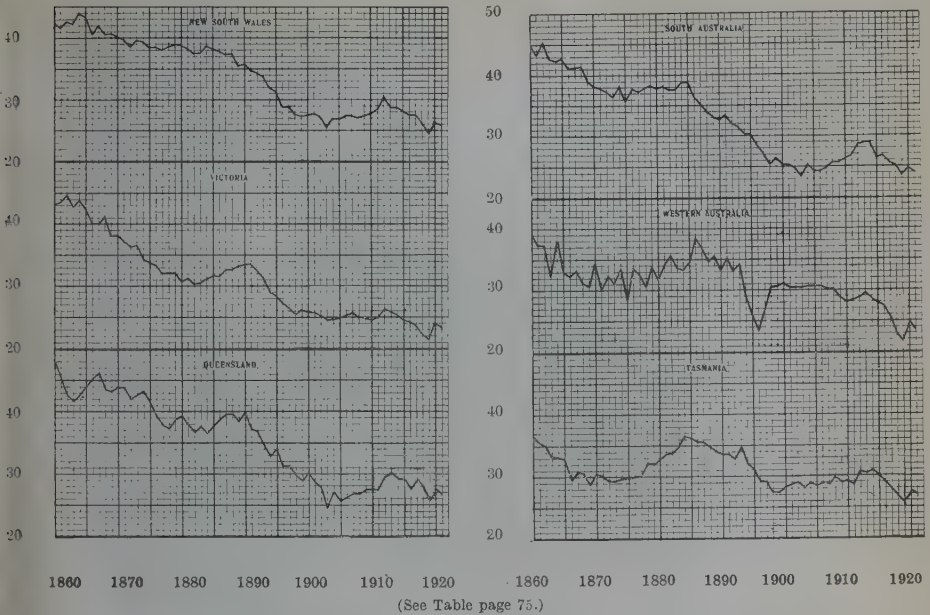
BIRTH RATE GRAPHS. (See next page.)

EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height one birth per thousand of the population—the basic line for each State being twenty per thousand of the population.

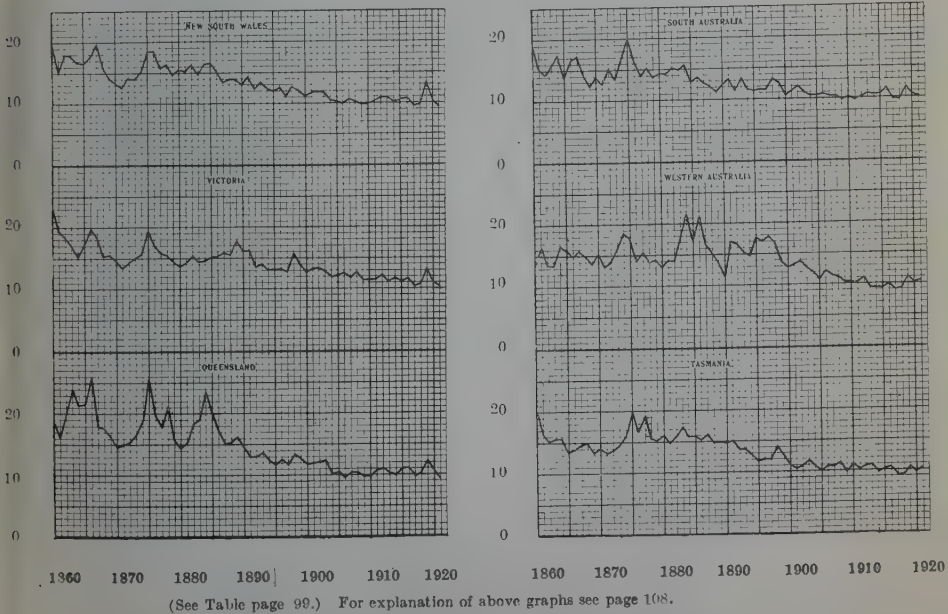
DEATH RATE GRAPHS. (See next page.)

EXPLANATION OF GRAPHS.—The base of each small square represents one year's interval, and the vertical height one death per thousand of the population. The zero for each State is shown by a thickened line.

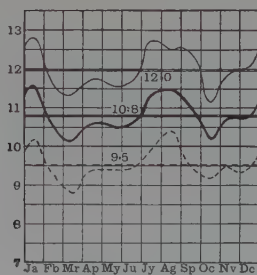
GRAPHS SHEWING BIRTH RATES IN THE STATES OF NEW SOUTH WALES, VICTORIA, QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860 TO 1921.



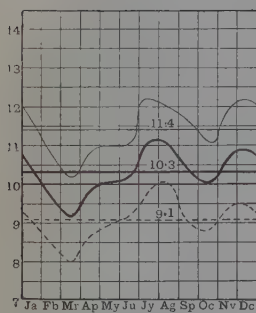
GRAPHS SHEWING DEATH RATES IN THE STATES OF NEW SOUTH WALES, VICTORIA, QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860-1921.



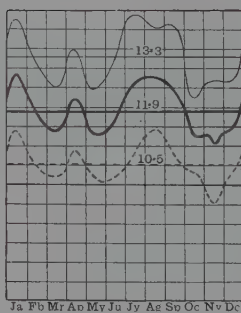
GRAPHS SHEWING GENERAL MONTHLY DEATH RATES 1907 TO 1912.



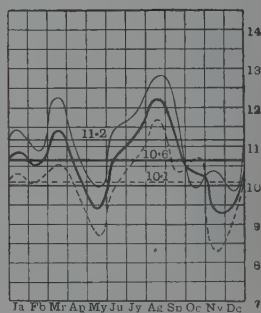
COMMONWEALTH.



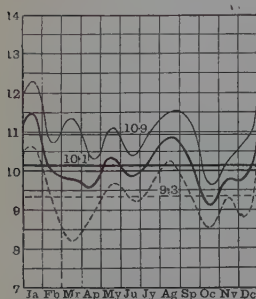
NEW SOUTH WALES.



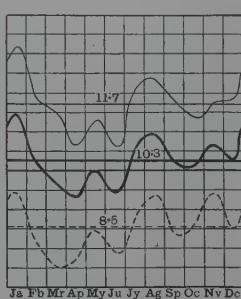
VICTORIA.



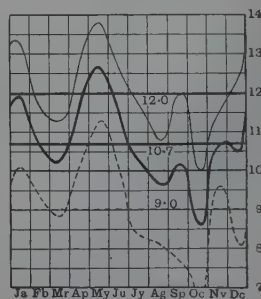
TASMANIA.



SOUTH AUSTRALIA.



QUEENSLAND.

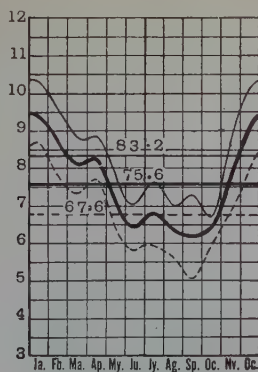


WESTERN AUSTRALIA.

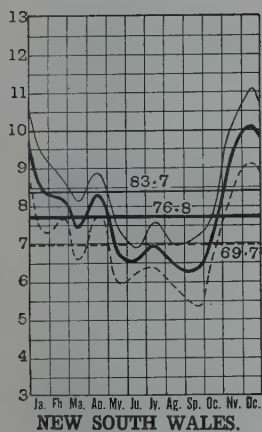
Male Death Rates shewn :

Female	99	99
General	98	98

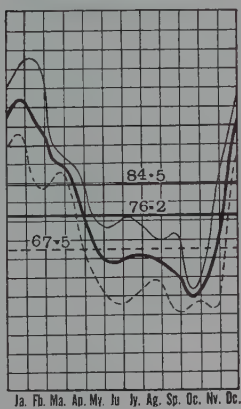
GRAPHS SHEWING INFANTILE MONTHLY DEATH RATES, 1907 TO 1912.



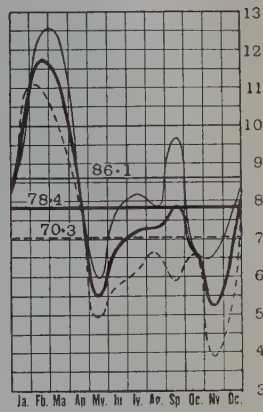
COMMONWEALTH.



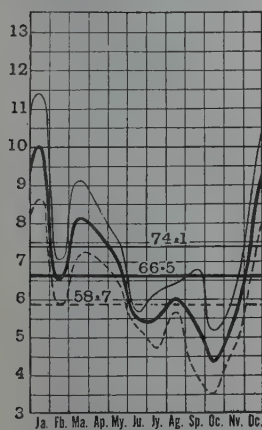
NEW SOUTH WALES.



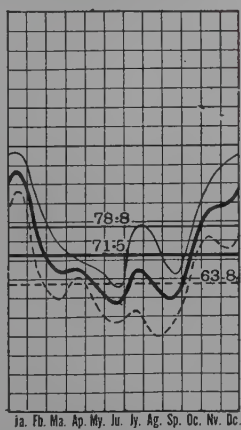
VICTORIA.



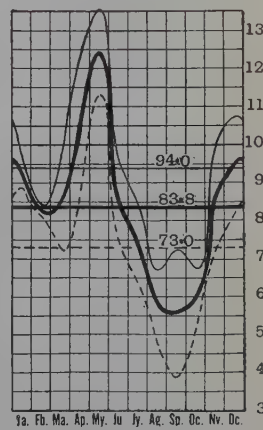
TASMANIA.



SOUTH AUSTRALIA.



QUEENSLAND.



WESTERN AUSTRALIA.

Male Death Rates shewn : —————
 Female " " —————
 General " " —————

The following tables shew the death rate per 1,000 living at each age for the three years 1910, 1911, and 1912, viz., the Census year 1911, and the years immediately preceding and following. The Northern Territory is included with South Australia, and the Federal Territory with New South Wales :—

AVERAGE ANNUAL DEATH RATES PER 1,000 LIVING IN VARIOUS AGE-GROUPS, 1910 TO 1912.

Age Group.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
MALES.							
0 to 4 years ..	25.40	24.71	23.30	21.30	28.44	24.65	24.71
5 " 9 " ..	2.11	2.39	2.39	1.85	2.61	2.53	2.36
10 " 14 " ..	1.75	1.69	1.74	1.40	2.16	1.70	1.72
15 " 19 " ..	2.42	2.41	2.92	2.43	2.86	2.59	2.52
20 " 24 " ..	3.37	3.27	4.83	3.00	5.17	3.57	3.65
25 " 29 " ..	3.91	4.13	5.57	3.57	5.86	4.49	4.35
30 " 34 " ..	4.90	4.83	5.96	5.40	6.75	3.77	5.20
35 " 39 " ..	6.08	6.31	7.54	7.15	8.41	6.28	6.68
40 " 44 " ..	8.25	8.26	9.65	8.31	10.37	6.17	8.58
45 " 49 " ..	10.91	11.05	13.83	10.27	14.96	9.25	11.58
50 " 54 " ..	14.78	15.33	17.77	13.02	17.66	14.08	15.36
55 " 59 " ..	21.93	21.41	23.01	19.99	24.65	16.24	21.67
60 " 64 " ..	30.99	31.52	31.25	31.94	35.06	28.39	31.38
65 " 69 " ..	45.80	50.53	51.53	45.94	45.96	38.29	47.69
70 " 74 " ..	71.49	74.28	70.94	58.38	78.74	58.79	70.88
75 " 79 " ..	117.05	115.68	112.40	99.49	110.54	108.60	114.04
80 " 84 " ..	181.34	174.56	190.89	165.68	185.23	148.67	176.32
85 " 89 " ..	252.58	270.76	202.56	225.42	328.21	313.87	257.73
90 and over ..	375.35	365.88	272.73	279.57	321.43	465.61	357.11
FEMALES.							
0 to 4 years ..	20.96	19.79	20.07	16.96	21.76	21.27	20.22
5 " 9 " ..	1.78	2.27	2.29	1.71	2.58	1.88	2.04
10 " 14 " ..	1.41	1.81	1.45	1.25	1.77	2.51	1.59
15 " 19 " ..	1.96	2.42	2.20	2.19	2.01	3.47	2.22
20 " 24 " ..	3.22	3.74	3.76	3.44	3.82	4.09	3.53
25 " 29 " ..	4.02	4.31	4.68	4.79	4.42	4.66	4.31
30 " 34 " ..	4.51	4.98	4.46	4.92	4.88	4.93	4.73
35 " 39 " ..	5.84	6.02	5.79	5.71	6.15	7.68	5.97
40 " 44 " ..	6.24	6.63	7.11	5.80	6.73	5.67	6.44
45 " 49 " ..	7.63	8.05	9.07	7.91	8.40	7.02	7.98
50 " 54 " ..	11.22	11.30	11.73	9.72	11.82	8.76	11.07
55 " 59 " ..	14.38	15.55	14.13	12.63	14.18	15.80	14.60
60 " 64 " ..	21.69	22.27	21.64	20.54	20.44	19.50	21.60
65 " 69 " ..	37.81	36.48	34.69	35.01	34.59	35.09	36.47
70 " 74 " ..	55.75	58.36	57.82	48.28	54.52	55.11	56.13
75 " 79 " ..	97.62	98.27	86.11	91.32	92.45	93.30	95.91
80 " 84 " ..	154.31	157.19	138.33	137.87	144.14	150.77	151.89
85 " 89 " ..	184.60	225.65	200.82	202.17	186.67	254.45	208.59
90 and over ..	307.43	361.44	351.52	328.17	358.97	317.88	334.87

**AVERAGE ANNUAL DEATH RATES PER 1,000 LIVING. IN VARIOUS
AGE-GROUPS, 1910 TO 1912—continued.**

Age-Group.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
PERSONS.							
0 to 4 years ..	23.21	22.29	21.72	19.16	25.15	23.00	22.50
5 " 9 " ..	1.95	2.33	2.34	1.78	2.60	2.21	2.15
10 " 14 " ..	1.58	1.75	1.60	1.33	1.97	2.10	1.66
15 " 19 " ..	2.19	2.42	2.57	2.31	2.45	3.03	2.37
20 " 24 " ..	3.30	3.51	4.33	3.22	4.60	3.84	3.59
25 " 29 " ..	3.96	4.22	5.17	4.17	5.29	4.58	4.33
30 " 34 " ..	4.71	4.92	5.29	5.16	6.00	4.34	4.97
35 " 39 " ..	5.97	6.16	6.78	6.44	7.51	6.94	6.34
40 " 44 " ..	7.31	7.44	8.58	7.09	9.06	5.94	7.59
45 " 49 " ..	9.45	9.59	11.95	9.14	12.73	8.20	9.96
50 " 54 " ..	13.25	13.40	15.48	11.49	15.64	11.63	13.48
55 " 59 " ..	18.63	18.52	19.59	16.67	20.87	16.04	18.52
60 " 64 " ..	26.79	26.86	27.44	26.48	29.25	24.08	26.87
65 " 69 " ..	42.18	43.26	44.44	40.58	41.22	36.66	42.37
70 " 74 " ..	64.41	65.98	65.87	53.36	68.67	56.91	63.91
75 " 79 " ..	108.56	107.11	101.89	95.17	103.30	100.66	105.58
80 " 84 " ..	169.10	171.29	166.15	150.82	170.12	149.75	164.97
85 " 89 " ..	217.51	248.40	201.72	211.72	266.67	284.83	232.64
90 and over ..	337.70	363.94	308.54	307.81	333.33	404.98	345.44

The tables shew a high death rate for children under five years of age, which rapidly diminishes until, at ages 10 to 14, a rate of 1.66 per 1,000 is shewn, which is the lowest at any age. The rate then gradually rises with increasing age until, at the ages 90 and over, more than one-third die every year.

10. Deaths of Centenarians, 1921.—Particulars as to the twenty-three persons who died in 1921, aged 100 years and upwards, are given in the following table. It must, of course, be understood that while the Registrars-General of the various States take the greatest care to have statements as to abnormally high ages verified as far as possible, no absolute reliance can be placed on the accuracy of the ages shewn, owing to the well-known tendency of very old people to overstate their ages. No attempt has been made by the Commonwealth Bureau of Census and Statistics to verify the truth of the statements made. The fact must not be disregarded in connexion with this question, that while parish registers in the United Kingdom often date very far back, compulsory registration of births dates practically only from 1874, the Act passed in 1836 having left many loop-holes open for those unwilling to register the births of their children.

DEATHS OF CENTENARIANS, COMMONWEALTH, 1921.

Age.	Locality where Death occurred.	State.	Cause of Death.	Occupation.	Birthplace.	Length of Residence in Commonwealth.	Conjugal Condition.
MALES.							
Yrs.	Granville ..	N.S.W. ..	Senility ..	Teamster	Ireland ..	40 years ..	Single
104	Longwarry	Victoria ..	" ..	Farmer ..	" ..	69 " ..	Married
102	Geraldton	W. Australia	" ..	Pensioner	England ..	102 " ..	"
101	Lismore ..	N.S.W. ..	" ..	Farmer ..	Ireland ..	66 " ..	"
101	Inverell ..	" ..	" ..	Labourer..	N.S.W. ..	Native	Single
101	Warren ..	" ..	" ..	" ..	" ..	" ..	"

DEATHS OF CENTENARIANS, COMMONWEALTH, 1921—*continued.*

Age.	Locality where Death occurred.	State.	Cause of Death.	Occupation.	Birthplace.	Length of Residence in Commonwealth.	Conjugal Condition.
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MALES—*continued.*

Yrs.							
101	Port Wakefield	S. Australia	Senility ..	Labourer..	Ireland ..	63 years ..	Married
100	Glebe ..	N.S.W. ..	Acute Nephritis	Electrician	England ..	69 " ..	"
100	Nundle ..	N.S.W. ..	Myocarditis	Builder ..	Scotland	66 years ..	"
100	Mortlake ..	Victoria	Senility ..	Labourer..	Ireland ..	80 " ..	"
100	Rockhampton	Queensland	" ..	Unspecified	" ..	37 " ..	"
100	Toowoomba	"	Jaundice ..	Farmer ..	" ..	65 " ..	"
100	Launceston	Tasmania	Myocarditis	Pensioner	" ..	63 " ..	"

FEMALES.

Yrs.							
104	Port Lincoln	S. Australia	Bronchitis..	..	England ..	64 years ..	Married
102	Sydney ..	N.S.W. ..	Senility ..	..	Ireland ..	86 " ..	"
102	Ross ..	Tasmania	Broncho-Pneumonia	..	Tasmania	Native ..	"
101	Auburn ..	N.S.W. ..	Senility ..	..	England ..	88 years ..	Unspecified
101	Drummoyne	" ..	" ..	..	" ..	81 " ..	Married
101	Newtown ..	" ..	" ..	..	" ..	73 " ..	"
101	Natimuk ..	Victoria ..	" ..	..	Germany ..	72 " ..	"
101	York ..	W. Australia	" ..	..	Ireland ..	67 " ..	"
100	Goulburn ..	N.S.W. ..	" ..	..	England ..	80 " ..	"
100	Auburn ..	" ..	Pneumonia	..	India ..	Unspecified	"

11. Length of Residence in the Commonwealth of Persons who Died in 1921.—The length of residence in the Commonwealth of all persons whose deaths were registered in the year 1921 has been tabulated for all the States, and a summary of the results is shewn below:—

LENGTH OF RESIDENCE IN COMMONWEALTH OF PERSONS WHO DIED IN 1921.

Length of Residence.	Male Deaths.	Female Deaths.	Total Deaths.	Length of Residence.	Male Deaths.	Female Deaths.	Total Deaths.
Born in the C'wealth	19,331	16,041	35,372	Resident 25 to 29 years	305	145	450
Resident under 1 year ..	103	57	160	" 30 to 34 "	849	472	1,321
" 1 year ..	76	81	157	" 35 to 39 "	1,081	599	1,680
" 2 years ..	25	42	67	" 40 to 44 "	1,129	563	1,692
" 3 " ..	29	12	41	" 45 to 49 "	641	376	1,017
" 4 " ..	34	12	46	" 50 to 54 "	713	509	1,222
" 5 " ..	34	17	51	" 55 to 59 "	759	614	1,373
" 6 " ..	32	33	65	" 60 to 64 "	959	865	1,824
" 7 " ..	92	71	163	" 65 yrs. and over	1,451	1,677	3,128
" 8 " ..	138	95	233	Length of residence not stated ..	1,818	573	2,391
" 9 " ..	162	93	255				
" 10 to 14 years..	453	251	704				
" 15 to 19 " ..	159	83	242				
" 20 to 24 " ..	275	143	418	Total ..	30,652	23,424	54,076

12. Birthplaces of Persons who Died in 1921.—In the following table are shewn the birthplaces of persons whose deaths were registered in 1921 :—

BIRTHPLACES OF PERSONS WHO DIED IN 1921, COMMONWEALTH.

Birthplace.	Males.	Females.	Total.	Birthplace.	Males.	Females.	Total.
AUSTRALASIA—				ASIA—continued.			
Commonwealth of				Philippine Islands	6	..	6
Australia—				Syria ..	13	8	21
New South Wales	7,141	5,933	13,074	Other Asiatic			
Victoria ..	6,224	5,039	11,263	Countries ..	15	1	16
Queensland ..	2,000	1,570	3,570				
South Australia ..	2,042	1,829	3,871				
Western Australia	764	578	1,342				
Tasmania ..	1,155	1,083	2,238	AFRICA—			
Northern Territory	4	7	11	Union of Sth. Africa	29	13	42
Federal Territory	1	2	3	Mauritius ..	7	4	11
New Zealand ..	178	117	295	Other African Brit.			
				Possessions ..	1	..	1
				Other African			
				Countries ..	2	1	3
EUROPE—							
England ..	4,949	3,478	8,427	AMERICA—			
Wales ..	172	111	283	Canada ..	49	17	66
Scotland ..	1,309	948	2,257	Jamaica ..	5	1	6
Ireland ..	2,060	1,983	4,043	Newfoundland ..	4	3	7
Isle of Man ..	3	1	4	Other American			
Other European				Brit. Possessions	4	1	5
Brit. Possessions	32	12	44	Argentine Re-			
Austria-Hungary	29	7	36	public ..	1	2	3
Belgium ..	5	1	6	Brazil ..	2	1	3
Denmark ..	114	33	147	Chile ..	2	1	3
France ..	60	20	80	United States of			
Germany ..	453	236	689	America ..	86	32	118
Greece ..	25	..	25	Other American			
Italy ..	77	15	92	Countries ..	19	14	33
Netherlands ..	17	2	19				
Norway ..	61	4	65				
Portugal ..	7	1	8				
Russia ..	72	28	100				
Spain ..	10	3	13				
Sweden ..	102	14	116				
Switzerland ..	35	6	41				
Other European							
Countries ..	7	1	8				
ASIA—							
British India ..	86	21	107	POLYNESIA—			
Ceylon ..	5	2	7	Fiji ..	6	1	7
Straits Settlements	3	..	3	Papua ..	2	1	3
Other Asiatic Brit.				Other Polynesian			
Possessions ..	5	..	5	Brit. Possessions	8	..	8
Afghanistan ..	4	..	4	New Caledonia ..	3	..	3
Arabia ..	1	..	1	New Hebrides ..	3	1	4
China ..	310	3	313	Samoa ..	1	..	1
Japan ..	33	3	36	Other Polynesian			
Java ..	8	..	8	Islands ..	..	3	3
				South Sea Islands			
				(so described)	31	1	32
				At Sea ..	77	44	121
				Not stated ..	713	183	896
				Total Deaths ..	30,652	23,424	54,076

13. Occupations of Male Persons who Died in 1921.—Information as to the occupations of the 39,652 males who died in the Commonwealth in 1921 is contained in the following statement:—

OCCUPATIONS OF MALES WHO DIED IN 1921, COMMONWEALTH.

Occupation.	No. of Deaths.	Occupation.	No. of Deaths.
CLASS I.—PROFESSIONAL.		CLASS III.—COMMERCIAL—cont.	
General Government	139	Animal food	288
Local Government	22	Vegetable food	106
Defence	169	Groceries and stimulants	156
Law and order	209	Living animals	40
Religion	115	Leather, raw materials	6
Health	192	Wool and tallow	9
Literature	31	Hay, corn, etc.	18
Science	13	Other vegetable matter	17
Civil and mechanical engineering, architecture and surveying	95	Wood and coal	19
Education	141	Stone, clay, glass	4
Fine arts	45	Gold, silver and precious stones	1
Music	44	Ironmongery	25
Amusements	92	Merchants	109
Total Professional	1,307	Shopkeepers and assistants	196
CLASS II.—DOMESTIC.		Dealers and hawkers	109
Hotelkeepers and assistants	493	Agents and brokers	110
Others engaged in providing board and lodging	28	Clerks, bookkeepers, etc.	669
Coachmen and grooms	62	Commercial travellers and salesmen	237
Hairdressers	72	Others engaged in commercial pursuits	175
Laundrymen	14	Speculators on chance events	18
Others engaged in domestic occupations	156	Total Commercial	2,739
House servants	5	CLASS IV.—TRANSPORT AND COMMUNICATION.	
Total Domestic	830	Railway traffic	491
CLASS III.—COMMERCIAL.		Tramway traffic	74
Banking and finance	102	Road traffic	590
Insurance and valuation	85	Sea and river traffic	544
Land and household property	60	Postal service	86
Property rights, n.e.i.	3	Telegraph and telephone service	41
Books, publications and advertising	36	Messengers, etc.	11
Musical instruments	1	Aviation	4
Prints, Pictures, and Art Materials	1	Total Transport and Communication	1,841
Arms and ammunition	1	CLASS V.—INDUSTRIAL.	
Machines, tools and implements	4	Books and publications	160
Carriages and vehicles	7	Musical instruments	18
Harness and saddlery	1	Prints, pictures and art materials	6
Ships and boats	1	Ornaments and small wares	25
Building materials	13	Sports and games	2
Furniture	7	Designs, medals, type and dies	5
Paper and stationery	9	Watches and clocks	28
Textile fabrics	77	Surgical instruments	1
Dress	18	Arms and ammunition	7
Fibrous materials	1	Engines, machines, tools, etc.	135
		Carriages and vehicles	146
		Harness, saddlery and leatherware	86

OCCUPATIONS OF MALES WHO DIED IN 1921, COMMONWEALTH—*continued.*

Occupation.	No. of Deaths.	Occupation.	No. of Deaths.
CLASS V.—INDUSTRIAL— <i>continued.</i>		CLASS VI.—AGRICULTURAL, PASTORAL, MINING PURSUITS, ETC.	
Ships, boats and equipment ..	54	Agricultural	3,112
Furniture	116	Pastoral	863
Building materials	106	Dairy farming	68
Chemicals and by-products ..	6	Bees, fisheries and wild animals..	90
Textile fabrics	45	Forestry	104
Dress	386	Water conservation and supply ..	27
Fibrous materials	16	Mines and quarries	1,447
Animal food	24		
Vegetable food	164	Total Primary Producers ..	5,711
Groceries and stimulants ..	50		
Animal matter	35		
Workers in wood not elsewhere classed	16		
Vegetable produce for fodder ..	1		
Paper	6		
Stone, clay, glass	79		
Jewellery and precious stones ..	35	CLASS VII.—INDEFINITE.	
Metals, other than gold and silver	435	Independent means, having no specific occupation	478
Gas, electric lighting, etc. ..	80	Occupation unspecified	958
Buildings—		Total Indefinite	1,436
Builders	126		
Stonemasons	99		
Bricklayers	108		
Slaters	8		
Carpenters	461		
Plasterers	53		
Painters and glaziers	202		
Plumbers	79		
Signwriters	10	CLASS VIII.—DEPENDENTS.	
Others	2	Dependent relatives (including persons under 20 years of age with no specified occupation) ..	8,055
Roads, railways and earthworks	51	Supported by voluntary and State contributions	120
Disposal of the dead	15	Total Dependents	8,175
Disposal of refuse	38		
Other industrial workers—			
Manufacturers	65		
Engineers, firemen	441		
Contractors	224		
Labourers, undefined	4,326		
Others	31		
Total Industrial	8,613	Total Male Deaths	30,652

14. *Index of Mortality.*—The death rates, those for age-groups on page 113 excepted, so far shewn are crude rates, *i.e.*, they simply shew the number of deaths per thousand of mean population, without taking the age constitution of that population into consideration. It is, however, a well-known fact that the death rate and age constitution of a people are intimately related; thus, other conditions being equal, the death rate of a country will be lower if it contains a large percentage of young people (not infants). In order to have a comparison of the mortality of various countries on a uniform basis, so far as age constitution is concerned, the International Statistical Institute in its 1895 session recommended the universal adoption of the population of Sweden in five age-groups, as ascertained at the Census of 1890, as the standard population by which this “Index of Mortality,” as distinguished from the crude death rate,

should be ascertained. The calculation for 1921 is shewn below for each of the States and Territories and for the Commonwealth, the distribution of the mean population of 1921 into age-groups being in accordance with the distribution as found at the Census of 1911 :—

INDEX OF MORTALITY, STATES AND COMMONWEALTH, 1921.

Age-Group.	Mean Population, 1921, distributed according to Results of Census of 1911.	Number of Deaths, 1921.	No. of Deaths per 1,000 of Mean Population, 1921, in each Age-Group.	Age Distribution per 1,000 of Standard Population.	Index of Mortality.
NEW SOUTH WALES.					
Under 1 year	57,925	3,422	59.08	25.5	1.51
1 year and under 20	829,514	2,320	2.80	398.0	1.11
20 years " 40	705,753	2,691	3.81	269.6	1.03
40 " " 60	381,040	3,912	10.27	192.3	1.97
60 " and upwards	132,266	7,681	58.07	114.6	6.65
Total	2,106,498	20,026	9.51	1,000.0	12.27
VICTORIA.					
Under 1 year	36,370	2,583	71.02	25.5	1.81
1 year and under 20	591,722	1,562	2.64	398.0	1.05
20 years " 40	486,606	1,996	4.10	269.6	1.11
40 " " 60	309,815	3,292	10.63	192.3	2.04
60 " and upwards	112,750	6,732	59.71	114.6	6.84
Total	1,537,263	16,165	10.52	1,000.0	12.85
QUEENSLAND.					
Under 1 year	20,677	1,107	53.54	25.5	1.37
1 year and under 20	313,251	930	2.97	398.0	1.18
20 years " 40	250,534	1,117	4.46	269.6	1.20
40 " " 60	135,837	1,497	11.02	192.3	2.12
60 " and upwards	44,366	2,491	56.15	114.6	6.43
Total	764,665	7,142	9.34	1,000.0	12.30
SOUTH AUSTRALIA.					
Under 1 year	12,809	784	61.21	25.5	1.56
1 year and under 20	194,779	570	2.93	398.0	1.17
20 years " 40	163,895	687	4.19	269.6	1.13
40 " " 60	90,934	884	9.72	192.3	1.87
60 " and upwards	34,996	2,057	58.78	114.6	6.74
Total	497,413	4,982	10.02	1,000.0	12.47
WESTERN AUSTRALIA.					
Under 1 year	8,909	614	68.92	25.5	1.76
1 year and under 20	122,052	427	3.50	398.0	1.39
20 years " 40	122,372	462	3.78	269.6	1.02
40 " " 60	66,557	972	14.60	192.3	2.81
60 " and upwards	13,368	1,005	75.18	114.6	8.62
Total	333,258	3,480	10.44	1,000.0	15.60
TASMANIA.					
Under 1 year	5,998	450	75.03	25.5	1.91
1 year and under 20	90,848	258	2.84	398.0	1.13
20 years " 40	65,262	288	4.41	269.6	1.19
40 " " 60	37,927	396	10.44	192.3	2.01
60 " and upwards	13,335	805	60.37	114.6	6.92
Total	213,370	2,197	10.30	1,000.0	13.16
NORTHERN TERRITORY.					
Under 1 year	35	5	142.86	25.5	3.64
1 year and under 20	719	6	8.34	398.0	3.32
20 years " 40	1,043	7	6.71	269.6	1.81
40 " " 60	1,757	30	17.07	192.3	3.28
60 " and upwards	855	32	90.14	114.6	10.33
Total	3,909	80	20.47	1,000.0	22.38

INDEX OF MORTALITY, STATES AND COMMONWEALTH, 1921—*continued.*

Age-Group.	Mean Population, 1921, distributed according to Results of Census of 1911.	Number of Deaths, 1921.	No. of Deaths per 1,000 of Mean Population, 1921, in each Age-Group.	Age Distribution per 1,000 of Standard Population.	Index of Mortality.
FEDERAL TERRITORY.					
Under 1 year	57	2	35.09	25.5	0.89
1 year and under 20	1,018	..	..	398.0	..
20 years " 40	763	..	..	269.6	..
40 " " 60	463	..	..	192.3	..
60 " and upwards	182	2	10.99	114.6	1.26
Total	2,483	4	1.61	1,000.0	2.15
COMMONWEALTH.					
Under 1 year	142,780	8,967	62.80	25.5	1.60
1 year and under 20	2,143,903	6,073	2.83	398.0	1.13
20 years " 40	1,796,228	7,248	4.04	269.6	1.09
40 " " 60	1,024,330	10,983	10.72	192.3	2.06
60 " and upwards	351,618	20,805	59.17	114.6	6.78
Total	5,458,859	54,076	9.91	1,000.0	12.66

NOTE.—The small number of persons whose ages were not ascertained at the 1911 Census has been proportionately distributed among the various age-groups, and the same plan has been followed in regard to the persons who died in 1921, and whose ages were not stated in the certificate of death.

It will be seen that among the States in 1921 Western Australia had the highest index and Victoria the highest crude rate, while New South Wales had the lowest index and Queensland the lowest crude rate. The range of the indexes was above that of the crude rates, the latter varying from 9.34 per thousand in Queensland to 10.52 per thousand in Victoria, a range of 1.18 per thousand, while the index varied from 12.27 per thousand in New South Wales to 15.60 per thousand in Western Australia, a range of 3.33 per thousand.

For purposes of comparison with previous years the index of mortality is shewn in the following table for each of the seven years 1915–1921 :—

INDEX OF MORTALITY, STATES AND TERRITORIES, 1915–1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	Federal Territory.	C'wealth.
1915 ..	13.24	13.54	14.30	13.09	12.79	13.04	21.62	7.15	13.47
1916 ..	13.48	14.28	14.37	14.45	14.15	13.43	22.63	3.63	13.99
1917 ..	12.45	12.81	12.64	12.65	12.93	11.78	13.42	6.70	12.63
1918 ..	12.86	13.23	13.94	12.53	13.69	11.70	15.40	2.37	13.07
1919 ..	16.48	15.51	15.97	14.59	15.50	13.29	17.42	8.76	15.75
1920 ..	13.32	13.72	14.36	13.49	15.63	12.28	18.27	3.20	13.65
1921 ..	12.27	12.85	12.30	12.47	15.60	13.16	22.38	2.15	12.66

15. Monthly Variations in Death Rates.—(i) *General Death Rates.* The annual death rates, corresponding to the number of deaths registered in each equalised month, have been calculated for the six years 1907–1912, and a series of diagrams shewing the results for each State and the Commonwealth as a whole appears on page 110 of this issue, distinguishing the rates for males, females, and persons. The curves shewing the male and female rates exhibit in each State a fairly parallel course, irregularities

being, however, more strongly marked in the case of the male curve. The minimum rates in New South Wales and Queensland fall within the autumn months, from March to May, while in Victoria, South Australia, Western Australia, and Tasmania they fall in the spring months, October and November. In no case is there, however, a very great difference between the rates in spring and in autumn, the figures for the Commonwealth being 10.19 per thousand in March, and 10.34 per thousand in October. The maximum rates in New South Wales, Victoria, and Tasmania are experienced in August, and in Queensland in September, with the rates for December and January as secondary maxima. In South Australia the maximum rate of 11.33 per thousand falls in January, the rate for August standing next with 10.80 per thousand. In Western Australia the maximum rate is found in May.

(ii) *Infantile Death Rate.* A similar series of diagrams, shewing the monthly variations in the infantile death rates, appears on page 111. With the exception of Western Australia, where the maximum occurs in May, the maxima are found in the summer months in every State. The rates gradually decrease from January to March, shewing in several States a slight increase in April, with a further diminution until July. In July and August the rates rise to some extent, to fall again until October or November. From that time a rapid rise takes place, until the maximum is reached in December or January. Tasmania, where the seasons are rather later than in the continental States, shews two distinct minima in May and November, with a summer maximum in February, and a fairly high rate in September. In Western Australia the rates are moderately high in December and January, and drop until March, to rise rapidly in April and May, when the maximum is reached. From May to September there is a gradual decrease, with a quick rise from the latter month until December.

16. Causes of Death.—(i) The classification adopted by the Commonwealth Bureau of Census and Statistics is that of the International Institute of Statistics, as amended by the Committee of Revision which met in 1909. The detailed classification groups causes of death under 189 different headings in fourteen categories, as follows :—

- | | |
|---|---|
| i. General Diseases. | viii. Diseases of the Skin and Cellular Tissue. |
| ii. Diseases of the Nervous System and Organs of Special Sense. | ix. Diseases of the Organs of Locomotion. |
| iii. Diseases of the Circulatory System. | x. Malformations. |
| iv. Diseases of the Respiratory System. | xi. Infancy. |
| v. Diseases of the Digestive System | xii. Old Age. |
| vi. Diseases of the Genito-urinary System and Adnexa. | xiii. Violence. |
| vii. Puerperal Condition. | xiv. Ill-defined Diseases. |

The third Decennial Revision was carried out by the International Commission which sat at Paris during October, 1920. The classification as revised will be in use for 1922 and subsequent years.

(ii) *Compilation of Vital Statistics for 1907 and Subsequent Years in Commonwealth Bureau.* The vital statistics of the Commonwealth from the year 1907 onward have been tabulated according to this classification in the Commonwealth Bureau, and the system is being employed in all the State offices in the preparation of their monthly and quarterly bulletins of vital statistics.

(iii) *Classification of Causes of Death, 1915 to 1921, according to Abridged International Classification.* An abridged classification, which enumerates thirty-eight diseases and groups of diseases according to the revised classification, is in use in many European and American States, while the Commonwealth statistics have been compiled on the detailed classification of 189 headings. A table has been compiled showing the causes of death according to the abridged classification, so that the results may be compared with those of countries which use the abridged index.

The compilations for the years 1915 to 1921 will be found in full in "Bulletins Nos. 33 to 39 of Population and Vital Statistics"; here it will suffice to give the abridged classification under thirty-eight headings for the year 1921.

CAUSES OF DEATH, COMMONWEALTH, 1921.

MALES.

Cause.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	Nor. Ter.	Fed. Ter.	C'with.
1 Typhoid Fever ..	72	30	32	21	24	13	..	..	192
2 Typhus ..	..	..	..	..	..	..	..	..	..
3 Malaria ..	4	..	17	..	3	1	15	..	40
4 Small-pox ..	..	..	..	..	..	..	..	..	1
5 Measles ..	14	2	8	4	14	..	1	..	43
6 Scarlet Fever ..	4	6	2	3	..	1	..	..	16
7 Whooping Cough ..	92	37	34	7	28	7	..	..	205
8 Diphtheria and Croup ..	160	142	57	55	25	30	..	..	469
9 Influenza ..	82	25	34	6	13	12	..	1	173
9A Pneumonic Influenza ..	84	37	16	6	17	8	..	..	168
10 Asiatic Cholera ..	..	..	..	..	..	..	..	..	..
11 Cholera Nostras ..	1	..	..	..	..	..	..	..	1
12 Other Epidemic Diseases ..	38	27	55	10	12	1	1	..	144
13 Tuberculosis of the Lungs ..	690	559	221	175	175	74	9	..	1,903
14 Tuberculosis of the Meninges ..	41	48	3	15	7	5	..	..	119
15 Other forms of Tuberculosis ..	50	48	14	18	12	7	..	..	149
16 Cancer and other Malignant Tumours ..	916	688	355	239	160	77	5	..	2,440
17 Meningitis ..	128	106	34	33	29	16	..	..	346
18 Congestion, Hæmorrhage and Softening of Brain ..	464	361	159	128	86	43	3	..	1,244
19 Organic Diseases of the Heart ..	1,080	815	424	297	159	118	2	..	2,895
20 Acute Bronchitis ..	95	48	39	12	10	5	..	..	209
21 Chronic Bronchitis ..	170	129	56	36	28	12	..	..	431
22 Pneumonia ..	505	334	137	94	74	64	1	..	1,209
23 Other Diseases of the Respiratory System (Tuberculosis exceptd.) ..	454	482	190	85	125	59	1	..	1,396
24 Diseases of the Stomach (Cancer excepted) ..	89	78	32	13	12	11	..	..	235
25 Diarrhœa and Enteritis (children under 2 years only) ..	543	413	143	136	136	74	..	..	1,445
26 Appendicitis & Typhlitis ..	77	52	31	9	21	8	..	..	198
27 Hernia, Intestinal Obstruction ..	95	80	26	23	14	10	..	..	248
28 Cirrhosis of the Liver ..	71	57	56	18	20	5	..	..	227
29 Nephritis and Bright's Disease ..	475	402	176	102	55	25	..	..	1,235
30 Non-cancerous Tumours and other Diseases of Female Genital Organs ..	..	..	..	..	..	..	..	..	..
31 Puerperal Septicæmia (Puerperal Fever, Puerperal Peritonitis, Puerperal Phlebitis) ..	..	..	..	..	..	..	..	..	..
32 Other Puerperal Accidents of Pregnancy and Confinement ..	..	..	..	..	..	..	..	..	..
33 Congenital Debility and Malformations ..	860	633	264	205	135	81	..	..	2,178
34 Senile Debility ..	891	610	286	184	125	68	9	..	2,173
35 Violence ..	828	535	492	170	186	85	5	..	2,301
36 Suicide ..	173	133	88	41	63	11	1	..	510
37 Other Diseases ..	2,058	1,625	865	454	395	220	9	1	5,627
38 Unspecified or Ill-defined Diseases ..	186	119	51	56	46	15	8	1	482
Total—Males ..	11,490	8,662	4,397	2,655	2,209	1,166	70	3	30,652

CAUSES OF DEATH, COMMONWEALTH, 1921.

FEMALES.

Cause.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	Nor. Ter.	Fed. Ter.	C'wlth.
1 Typhoid Fever ..	53	37	27	13	18	12	..	..	160
2 Typhus ..	..	..	..	..	..	..	..	..	..
3 Malaria ..	..	..	3	..	..	..	..	..	3
4 Small-pox ..	..	1	..	..	..	..	..	..	1
5 Measles ..	17	3	3	10	7	..	..	..	40
6 Scarlet Fever ..	5	15	1	1	1	3	..	..	26
7 Whooping Cough ..	100	43	30	12	25	11	1	1	223
8 Diphtheria and Croup ..	142	133	54	69	20	30	..	..	448
9 Influenza ..	58	25	29	5	9	9	..	..	135
9A Pneumonic Influenza ..	88	36	24	11	14	5	..	..	178
10 Asiatic Cholera ..	..	..	..	..	..	..	..	..	..
11 Cholera Nostras ..	..	..	..	..	1	..	..	..	1
12 Other Epidemic Diseases ..	28	24	21	5	6	4	..	..	88
13 Tuberculosis of the Lungs ..	417	469	117	156	85	57	1	..	1,302
14 Tuberculosis of the Men- inges ..	27	46	3	17	1	5	..	..	99
15 Other forms of Tubercu- losis ..	38	49	9	11	3	5	..	..	115
16 Cancer and other Malig- nant Tumours ..	862	776	249	217	123	101	..	..	2,328
17 Meningitis ..	75	61	23	28	13	11	1	..	212
18 Congestion, Hæmorrhage and Softening of Brain ..	427	395	133	143	60	70	..	..	1,228
19 Organic Diseases of the Heart ..	794	777	256	250	75	119	..	..	2,271
20 Acute Bronchitis ..	85	41	18	16	8	8	1	..	177
21 Chronic Bronchitis ..	150	121	41	37	17	19	..	..	385
22 Pneumonia ..	347	267	89	60	59	35	..	..	857
23 Other Diseases of the Respiratory System (Tuberculosis exceptd.) ..	373	269	103	76	53	34	..	..	908
24 Diseases of the Stomach (Cancer excepted) ..	84	63	21	12	14	9	1	..	204
25 Diarrhœa and Enteritis (children under 2 yrs. only) ..	429	306	127	115	100	66	1	..	1,144
26 Appendicitis & Typhlitis ..	64	32	30	14	5	8	..	..	153
27 Hernia, Intestinal Ob- struction ..	93	68	28	22	10	11	..	..	232
28 Cirrhosis of the Liver ..	37	38	9	7	4	1	..	..	96
29 Nephritis and Bright's Disease ..	310	310	143	74	42	25	..	..	904
30 Non-cancerous Tumours and other Diseases of the Female Genital Organs ..	59	42	21	22	17	4	1	..	166
31 Puerperal Septicæmia (Puerperal Fever, Puer- peral Peritonitis, Puer- peral Phlebitis) ..	84	61	25	23	5	10	..	..	208
32 Other Puerperal Acci- dents of Pregnancy and Confinement ..	148	120	83	50	17	17	..	..	435
33 Congenital Debility and Malformations ..	598	476	186	149	96	74	1	..	1,580
34 Senile Debility ..	620	695	163	185	66	79	..	..	1,808
35 Violence ..	189	197	86	65	35	19	..	..	591
36 Suicide ..	53	25	17	7	6	3	..	..	111
37 Other Diseases ..	1,588	1,415	553	410	241	159	2	..	4,368
38 Unspecified or Ill-defined Diseases ..	94	67	20	35	15	8	..	..	239
Total—Females ..	8,536	7,503	2,745	2,327	1,271	1,031	10	1	23,424

CAUSES OF DEATH, COMMONWEALTH, 1921.

TOTAL—MALES AND FEMALES.

Cause.	N.S.W.	Vic.	Q'land.	S. Aus.	W. Aus.	Tas.	Nor. Ter.	Fed. Ter.	O'with.
1 Typhoid Fever ..	125	67	59	34	42	25	..	..	352
2 Typhus .. ..	..	..	..	..	..	..	..	..	..
3 Malaria	4	..	20	..	3	1	15	..	43
4 Small-pox .. ..	..	2	..	..	..	..	..	..	2
5 Measles	31	5	11	14	21	..	1	..	83
6 Scarlet Fever ..	9	21	3	4	1	4	..	..	42
7 Whooping Cough ..	192	80	64	19	53	18	1	1	428
8 Diphtheria and Croup ..	302	275	111	124	45	60	..	..	917
9 Influenza	140	50	63	11	22	21	..	1	308
9A Pneumonic Influenza ..	172	73	40	17	31	13	..	..	346
10 Asiatic Cholera .. ..	..	..	..	..	..	..	..	..	..
11 Cholera Nostras	1	..	..	..	1	..	..	..	2
12 Other Epidemic Diseases ..	66	51	76	15	18	5	1	..	232
13 Tuberculosis of the Lungs ..	1,107	1,028	338	331	260	131	10	..	3,205
14 Tuberculosis of the Men- inges	68	94	6	32	8	10	..	..	218
15 Other forms of Tuber- culosis	88	97	23	29	15	12	..	..	264
16 Cancer and other Malignant Tumours	1,778	1,464	604	456	283	178	5	..	4,768
17 Meningitis	203	167	57	61	42	27	1	..	558
18 Congestion, Hæmorrhage and Softening of the Brain .. ..	..	..	292	271	146	113	3	..	2,472
19 Organic Diseases of Heart ..	1,874	1,592	680	547	234	237	2	..	5,166
20 Acute Bronchitis	180	89	57	28	18	13	1	..	386
21 Chronic Bronchitis	320	250	97	73	45	31	..	..	816
22 Pneumonia	852	601	226	154	133	99	1	..	2,066
23 Other Diseases of the Respiratory System (Tuberculosis excepted) ..	827	751	293	161	178	93	1	..	2,304
24 Diseases of the Stomach (Cancer excepted)	173	141	53	25	26	20	1	..	439
25 Diarrhoea and Enteritis (children under 2 years only)	972	719	270	251	236	140	1	..	2,589
26 Appendicitis & Typhlitis ..	141	84	61	23	26	16	..	..	351
27 Hernia, Intestinal Ob- struction	188	148	54	45	24	21	..	..	480
28 Cirrhosis of the Liver ..	103	95	65	25	24	6	..	..	323
29 Nephritis and Bright's Disease	785	712	319	176	97	50	..	..	2,139
30 Non-cancerous Tumours and other Diseases of the Female Genital Organs	59	42	21	22	17	4	1	..	166
31 Puerperal Septicæmia (Puerperal Fever, Puer- peral Peritonitis, Puer- peral Phlebitis)	84	61	25	23	5	10	..	..	208
32 Other Puerperal Acci- dents of Pregnancy and Confinement	148	120	83	50	17	17	..	..	435
33 Congenital Debility and Malformations	1,458	1,109	450	354	231	155	1	..	3,758
34 Senile Debility	1,511	1,305	449	369	191	147	9	..	3,981
35 Violence	1,017	732	578	235	221	104	5	..	2,892
36 Suicide	226	158	105	48	69	14	1	..	621
37 Other Diseases	3,646	3,040	1,418	864	636	379	11	1	9,995
38 Unspecified or Ill-defined Diseases	280	186	71	91	61	23	8	1	721
Total—Males and Females	20,026	16,165	7,142	4,982	3,480	2,197	80	4	54,076

The classification for the years 1915 to 1921 is shewn for the Commonwealth in the following table, and for purposes of comparison the figures for the year 1921 have been repeated from the preceding table. Male and female deaths for 1915 are shewn on pages 198 and 199 of the tenth issue, for 1917 on pages 204 and 205 of the eleventh issue, for 1918 on pages 197 and 198 of the twelfth issue, for 1919 on pages 188 and 189 of the thirteenth issue, and for 1920 on pages 129 and 130 of the fourteenth issue of this book.

CAUSES OF DEATH, COMMONWEALTH, 1915 TO 1921.

MALES AND FEMALES.

Cause.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
1 Typhoid Fever	561	529	284	251	272	312	352
2 Typhus	30	50	49	41	34	19	43
3 Malaria	1	1	..	..	..	..	2
4 Small-pox	439	211	72	82	51	482	83
5 Measles	104	134	64	81	69	90	42
6 Scarlet Fever	185	426	282	234	211	561	428
7 Whooping Cough	703	893	646	645	581	829	917
8 Diphtheria and Croup	389	278	168	848	1,289	230	308
9 Influenza .. .. .	..	..	..	..	10,263	218	346
9A Pneumonic Influenza .. .. .	..	..	..	..	..	..	..
10 Asiatic Cholera	2	4	1	2	1	1	2
11 Cholera Nostras	205	249	144	174	157	124	232
12 Other Epidemic Diseases	3,064	3,198	2,883	3,035	3,479	3,098	3,205
13 Tuberculosis of the Lungs	213	215	206	208	188	214	218
14 Tuberculosis of the Meninges	278	310	275	292	281	295	264
15 Other forms of Tuberculosis	3,702	3,979	4,022	4,246	4,421	4,511	4,768
16 Cancer and other Mal. Tumours	1,209	1,201	690	583	481	596	558
17 Meningitis	2,118	2,230	2,214	2,297	2,467	2,495	2,472
18 Congestion, Hæmorrhage and Softening of the Brain	4,370	4,509	3,852	3,976	5,864	5,370	5,166
19 Organic Diseases of the Heart	489	512	321	399	420	398	386
20 Acute Bronchitis	913	1,057	829	1,121	1,047	962	816
21 Chronic Bronchitis	2,225	2,220	1,896	2,141	2,656	2,099	2,066
22 Pneumonia	2,212	2,243	1,941	2,199	2,413	2,527	2,304
23 Other Diseases of the Respiratory System (Tuberculosis excepted)	351	263	394	409	478	443	439
24 Diseases of the Stomach (Cancer excepted)	2,815	3,018	1,719	1,732	2,520	3,067	2,589
25 Diarrhœa and Enteritis (Children under two years only)	356	321	321	371	352	382	351
26 Appendicitis and Typhlitis	488	501	449	543	530	541	480
27 Hernia, Intestinal Obstruction	376	309	335	297	315	340	323
28 Cirrhosis of the Liver	2,274	2,329	2,203	2,144	2,221	2,286	2,139
29 Nephritis and Bright's Disease	139	153	148	159	132	154	166
30 Non-cancerous Tumours and other Diseases of the Female Genital Organs	182	282	250	183	166	250	208
31 Puerperal Septicæmia (Puerperal Fever, Peritonitis, Phlebitis)	394	411	482	409	404	433	435
32 Other Puerperal Accidents of Pregnancy and Confinement	3,993	3,826	3,423	3,454	3,885	4,046	3,758
33 Congenital Debility, etc.	4,686	4,980	4,770	4,664	4,840	4,636	3,981
34 Senile Debility	2,851	2,712	2,656	2,641	2,799	2,791	2,892
35 Violence	658	577	502	498	546	636	621
36 Suicide	9,090	9,433	8,871	9,226	9,390	10,048	9,995
37 Other Diseases	717	633	667	664	707	805	721
38 Unspecified or Ill-defined Diseases .. .. .	..	..	..	..	..	..	..
Total	52,782	54,197	48,029	50,249	65,930	56,289	54,076

17. Certification of Deaths.—Information was obtained in 1921 as to the persons by whom the 54,076 deaths which occurred in the Commonwealth were certified. The result of the enquiry shews that approximately 89.4 were certified by medical practitioners, 10.3 by coroners after inquests or magisterial enquiries, while in 0.3 per cent. of the cases there was either no certificate given or particulars were not forthcoming. The percentages for 1920 were 90.3, 9.4 and 0.3 respectively.

The results are shewn in detail in Bulletin No. 39; a short summary will therefore suffice here:—

CERTIFICATION OF DEATHS, COMMONWEALTH, 1921.

Death Certified by—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	O'with.
Medical practitioner	17,950	14,182	6,594	4,466	3,087	2,031	43	3	48,356
Coroner ..	2,064	1,982	441	510	371	164	32	1	5,565
Not certified or not stated ..	12	1	107	6	22	2	5	..	155
Total Deaths	20,026	16,165	7,142	4,982	3,480	2,197	80	4	54,076

Of the cases certified by coroners, violent deaths numbered 2,776, senile decay 323, organic heart disease 496, ill-defined causes 348, congenital debility 110, cerebral hæmorrhage and apoplexy 153, pneumonia 112, Bright's disease 93, diarrhœa and enteritis 127, pulmonary tuberculosis 76, diseases of arteries, aneurisms, etc., 58, broncho-pneumonia 47, acute and chronic alcoholism 29, puerperal diseases 43, and infantile convulsions 30; a total of 4,821 out of 5,565.

Of uncertified causes of death, violent deaths numbered 30, congenital debility 9, senile debility 28, ill-defined causes 38, and heart disease 5; a total of 110 out of 155.

18. Deaths from Special Causes.—The table on p. 125 furnishes comparisons for the last seven years only, and comparisons will, therefore, generally be restricted to that period.

(i) *Typhoid Fever.* The number of deaths from typhoid fever in 1921 was 352, which was equivalent to 6 per hundred thousand living. This rate was slightly higher than that for 1920, but was very much below the rates for 1915 and 1916, in each of which years it was 11 per hundred thousand living.

(ii) *Typhus.* No deaths from typhus have been registered from 1914 to 1921.

(iii) *Malaria.* Deaths from malarial diseases are practically confined to the tropical districts of Northern Queensland and Western Australia, and to the Northern Territory, 20 out of 43 deaths registered in 1921 having occurred in Queensland, 3 in Western Australia, and 15 in the Northern Territory.

(iv) *Small-pox.* The number of deaths from small-pox in Australia is very small, four deaths only resulting in the seven years under review.

(v) *Measles.*—Though no serious epidemic of measles has occurred, the numbers vary considerably from year to year. The greatest number occurred during 1920, when 482 were registered, while the minimum was reached in 1919 with a total of 51 deaths. During 1921 there were 43 male and 40 female deaths from measles, of which 31 were registered in New South Wales.

(vi) *Scarlet Fever.* The mortality from this source is very light, the average of deaths from 1915 to 1921 being about 83 per annum.

(vii) *Whooping Cough.* In 1920 the number of deaths was 561, the highest number registered in the period 1915 to 1921. In 1921 there were 428 deaths, of which 192 occurred in New South Wales, 80 in Victoria, 64 in Queensland, 19 in South Australia, 53 in Western Australia, and 18 in Tasmania.

(viii) *Diphtheria and Croup.* The number of deaths due to diphtheria and croup has varied from a minimum of 581 in 1919 to a maximum of 917 in 1921. Of the 917 registered in 1921, 898 were attributed to diphtheria, which gives a death rate of 16 per 100,000 of population. The corresponding rates for the separate States ranged from 13 per 100,000 in Western Australia to 27 in Tasmania.

(ix) *Influenza*. In 1915, 389 deaths were registered from this cause; in 1916, 278; and in 1917, 168. In 1918 there was rather a serious outbreak, the deaths rising to 848. In 1919 Australia experienced the full effect of the world-wide epidemic, the number of deaths reaching the unprecedented figure of 11,552, of which almost exactly one-half occurred in New South Wales. The deaths in States were as follows:—Ordinary influenza—New South Wales, 568; Victoria, 345; Queensland, 247; South Australia, 47; Western Australia, 42; Tasmania, 29; and Northern Territory, 11; total, 1,289. Pneumonic influenza—New South Wales, 5,215; Victoria, 3,110; Queensland, 799; South Australia, 471; Western Australia, 470; Tasmania, 196; Northern Territory, 1; and Federal Territory, 1; total, 10,263.

During 1921, 308 deaths were classed to ordinary influenza and 346 to pneumonic influenza, compared with 230 and 218 respectively for 1920.

(x) *Asiatic Cholera*. No cases of Asiatic cholera have ever occurred in the Commonwealth.

(xi) *Cholera Nostras*. For the seven years under review only thirteen deaths have been due to this cause.

(xii) *Other Epidemic Diseases*. The number of deaths registered under this heading was 232 in 1921. The list in 1921 includes the following diseases:—Dysentery 83, erysipelas 78, leprosy 6, other epidemic diseases 8. There were no deaths from plague in the Commonwealth from 1912 to 1920. An outbreak occurred in 1921, causing 56 deaths in Queensland and 1 in New South Wales.

(xiii) *Tuberculosis of the Lungs and Acute Miliary Tuberculosis*. The deaths in 1921 numbered 3,205, viz., 1,903 males and 1,302 females. The figures for the years 1915 to 1920 were 3,064, 3,198, 2,883, 3,035, 3,479 and 3,098 respectively. Of the deaths in 1921, 1,107 occurred in New South Wales, 1,028 in Victoria, 338 in Queensland, 331 in South Australia, 260 in Western Australia, 131 in Tasmania, and 10 in the Northern Territory.

(xiiiia) *Tuberculosis of the Respiratory System*. Of the various forms of tuberculosis prevalent in the Commonwealth, that which has attracted the most attention and has been the subject of the widest comment is phthisis, or tuberculosis of the lungs. The intimate relation, however, between tuberculosis of the lungs and that of other parts of the respiratory system renders it desirable that all forms of tuberculosis of the respiratory system should be brought under one head for various investigations concerning the age incidence and duration of this disease.

In the matter of the age incidence of death from tuberculosis of the respiratory system, diagrams were given in Year Books 2, 3, and 4, pp. 239, 217, and 206 respectively, shewing the frequency of deaths at successive ages in England and Wales during 1906 (Fig. 1) and in the Commonwealth during 1907 (Fig. 2). These were superseded by a fuller reference based on later results in Year Book No. 5, pp. 230, etc. The results given depended upon intercensal estimates of population, and these having been adjusted to agree with the Census of 3rd April, 1911, some slight amendments of the figures in previous issues were made in Year Book No. 5.

(xiv) *Tuberculosis of the Meninges*. The number of deaths ascribed to this cause has varied very slightly during the last seven years. The greatest number of deaths, viz., 218, occurred in 1921, and the least number, viz., 188, in 1919.

(xv) *Other Forms of Tuberculosis*. The deaths in 1921 include the following forms of tuberculosis:—Abdominal tuberculosis, 90; Pott's disease, 50; white swellings, 17; tuberculosis of other organs, 62; and disseminated tuberculosis, 45.

(xva) *All Forms of Tuberculosis*. A complete tabulation of all the different tubercular diseases from which deaths occurred in 1921 will be found in Bulletin No. 39 of Population and Vital Statistics. Here it will suffice to shew a few of the features of the tabulation mentioned. The total number of deaths due to tubercular diseases was 3,687, viz., 2,171 males and 1,516 females. The following table shews the ages of these 3,687 persons.

AGES OF PERSONS WHO DIED FROM TUBERCULAR DISEASES, COMMONWEALTH, 1921.

Ages.	Male.	Female.	Total.	Ages.	Male.	Female.	Total.
Under 5 years ..	90	76	166	55 years and under 60	172	65	237
5 years and under 10	30	28	58	60 " " 65	118	42	160
10 " " 15	23	24	47	65 " " 70	79	32	111
15 " " 20	72	100	172	70 " " 75	35	10	45
20 " " 25	173	194	367	75 " " 80	18	7	25
25 " " 30	232	246	478	80 " " over ..	6	7	13
30 " " 35	237	195	432				
35 " " 40	247	178	425	Unspecified ..	3	..	3
40 " " 45	234	141	375				
45 " " 50	223	102	325				
50 " " 55	179	69	248	Total Deaths ..	2,171	1,516	3,687

A tabulation has been made of the occupations of males dying from tubercular diseases during 1921. A summary is here given:—

OCCUPATIONS OF MALES WHO DIED FROM TUBERCULAR DISEASES, COMMONWEALTH, 1921.

Occupation..	No. of Deaths.	Occupation.	No. of Deaths.
PROFESSIONAL CLASS—		MANUFACTURING CLASS—	
Government, Defence, Law ..	108	Art and Mechanic Productions..	119
Others	59	Textiles and Fibrous Materials..	47
DOMESTIC CLASS—		Food and Drinks ..	16
Board and Lodging ..	61	Animal and Vegetable Sub-	
Others	34	stances	6
MERCANTILE CLASS—		Metals and Minerals ..	46
Property and Finance ..	23	Fuel, Light and Energy ..	15
Art, Mechanic and Textile Pro-		Building and Construction ..	105
ducts	12	Others	430
Food and Drinks ..	41	PRIMARY PRODUCERS—	
Animal and Vegetable Sub-		Agricultural	141
stances	10	Pastoral	39
Fuel, Light and Metals ..	4	Mining and Quarrying ..	213
Merchants and Dealers ..	35	Others	11
Others	167	INDEPENDENT MEANS ..	18
ENGAGED IN TRANSPORT AND		DEPENDENTS	184
COMMUNICATION—		OCCUPATION NOT STATED ..	62
Railways	33		
Roads and Trams ..	62	TOTAL MALE DEATHS ..	2,171
Seas and Rivers ..	46		
Others	24		

The length of residence in the Commonwealth of persons who died from tubercular diseases has been tabulated for the year 1921 for all the Commonwealth States, with the following results:

LENGTH OF RESIDENCE IN COMMONWEALTH OF PERSONS WHO DIED FROM TUBERCULAR DISEASES, 1921.

Length of Residence in Commonwealth.	Male.	Fem.	Total.	Length of Residence in Commonwealth.	Male.	Fem.	Total.
Born in Commonwealth ..	1,553	1,284	2,837	Resident 10 years & under 15	77	34	111
Resident under 1 year ..	7	8	15	" 15 " " 20	19	8	27
" 1 year ..	8	12	20	" 20 " " over ..	295	92	387
" 2 years ..	6	5	11	Length of residence not stated	111	24	135
" 3 " " ..	5	2	7				
" 4 " " ..	9	1	10	Total Deaths ..	2,171	1,516	3,687
" 5 " " and under 10	81	46	127				

From the preceding table and the table on page 115, it will be seen that, among persons who had lived less than 5 years in Australia, 471 deaths occurred, and of these 63, or 13.4 per cent., were due to tubercular diseases.

In order to shew the prevalence of tuberculosis in the several States, the death rates from tubercular diseases are given in the following table, together with the proportion which deaths from tuberculosis bear to 10,000 deaths from all causes:—

DEATH RATES (a) FROM TUBERCULOSIS AND PROPORTION OF TOTAL DEATHS, COMMONWEALTH, 1921.

State.	Death Rates (a) from Tuberculosis.			Proportion per 10,000 Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	73	47	59	680	565	631
Victoria	86	72	80	756	752	754
Queensland	59	36	48	541	470	514
South Australia	83	74	79	783	791	787
Western Australia	109	57	85	878	700	813
Tasmania	80	63	72	738	650	696
Northern Territory	317	93	256	1,285	1,000	1,250
Federal Territory .. ..	..	..	..	..	..	..
Commonwealth	78	56	68	708	647	682

(a) Number of deaths from Tuberculosis per 100,000 of mean population.

The following table, which gives for a number of countries the death rates from pulmonary and miliary tuberculosis per 100,000 persons living, shews that the Commonwealth occupies a very enviable position when compared with most European countries:—

PULMONARY AND MILIARY TUBERCULOSIS—DEATHS PER 100,000 PERSONS LIVING.

Country.	Year.	Death Rate.	Country.	Year.	Death Rate.
Rumania	1914	40	Italy	1917	118
South Africa, Union of (Whites)	1919	41	Germany	1913	124
Denmark	1914	44	Prussia	1913	137
New Zealand	1921	52	Spain	1919	143
Australia	1921	59	Switzerland	1918	146
Ontario (Canada)	1919	69	Jamaica	1915	147
Ceylon	1920	70	Norway	1917	164
Scotland	1921	81	Sweden	1915	166
Belgium	1912	93	Japan	1918	175
England and Wales	1919	97	France	1911	180
United Kingdom	1919	106	Ireland	1919	192
Netherlands	1915	110	Chile	1914	255
Quebec (Canada)	1919	111	Finland	1914	257
United States (Registration Area)	1919	111	Austria	1912	283
			Serbia	1911	324
			Hungary	1912	349

(xvi) *Cancer and other Malignant Tumours.* The number of deaths from cancer has increased continuously to 4,768 in 1921. Of the deaths registered in 1921, 2,440 were those of males, viz., 916 in New South Wales, 688 in Victoria, 355 in Queensland, 239 in South Australia, 160 in Western Australia, 77 in Tasmania, and 5 in the Northern Territory; while 2,328 were those of females, viz., 862 in New South Wales, 776 in Victoria, 249 in Queensland, 217 in South Australia, 123 in Western Australia, and 101 in Tasmania. Bulletin No. 39 contains a complete tabulation of the various types of cancer and of the seat of the disease, of which the following is a summary.

DEATHS FROM CANCER, COMMONWEALTH, 1921.

Seat of Disease.	Male.	Female.	Total.
Cancer, etc., of the buccal cavity	306	29	335
" " the stomach and liver	1,038	700	1,738
" " the peritoneum, the intestines, and the rectum ..	318	332	650
" " the female genital organs .. .. .	..	478	478
" " the breast .. .. .	..	369	369
" " the skin	100	61	161
" " other organs	678	359	1,037
Total Deaths	2,440	2,328	4,768

Of these deaths, 982 were described as cancer, 2,628 as carcinoma, 14 as endothelioma, 180 as epithelioma, 14 as hypernephroma, 497 as "malignant disease," 44 as "malignant tumour," 39 as neoplasm, 55 as "rodent ulcer," 297 as sarcoma, and 18 as scirrhus.

The ages of the 4,768 persons who died from cancer in 1921 are shewn in the following table, from which it will be seen that while the ages below 35 are not by any means immune from the disease, the great majority of deaths occurred at ages from 35 upwards, the maximum being found in the age group 60 to 65 :—

AGES OF PERSONS WHO DIED FROM CANCER, COMMONWEALTH, 1921.

Ages.	Male.	Female.	Total.	Ages.	Male.	Female.	Total.
Under 15 years ..	26	23	49	55 years and under 60	358	308	666
15 years and under 20	8	11	19	60 " " 65	442	349	791
20 " " 25	25	6	13	65 " " 70	380	285	665
25 " " 30	15	19	34	70 " " 75	312	234	546
30 " " 35	26	45	71	75 " " 80	212	215	427
35 " " 40	56	81	137	80 " " 85	83	89	172
40 " " 45	81	140	221	85 years and over..	45	52	97
45 " " 50	147	207	354	Unspecified ..	3	..	3
50 " " 55	240	263	503				
				Total Deaths ..	2,440	2,328	4,768

A tabulation, of which the following is a summary, has been made of the occupations of males who died from cancer :—

OCCUPATIONS OF MALES WHO DIED FROM CANCER, COMMONWEALTH, 1921.

Occupation.	No. of Deaths.	Occupation.	No. of Deaths.
PROFESSIONAL CLASS—		MANUFACTURING CLASS—	
Government, Defence and Law	53	Art and Mechanic Products..	102
Others	80	Textiles and Fibrous Materials	51
DOMESTIC CLASS—		Food and Drinks	27
Board and Lodging.. .. .	46	Animal and Vegetable Sub-	
Others	30	stances	9
MERCANTILE CLASS—		Metals and Minerals	56
Property and Finance	28	Fuel, Light and Energy	6
Art, Mechanic and Textile		Building and Construction ..	136
Products	12	Others	553
Food and Drinks	70	PRIMARY PRODUCERS—	
Animal and Vegetable Sub-		Agricultural	397
stances	6	Pastoral	112
Fuel, Light and Metals	2	Mining and Quarrying	108
Merchants and Dealers	48	Others	22
Others	109	INDEPENDENT MEANS	36
ENGAGED IN TRANSPORT AND		DEPENDENTS	36
COMMUNICATION—		OCCUPATION NOT STATED	93
Railways	57		
Roads and Trams	78		
Seas and Rivers	55		
Others	22	TOTAL MALE DEATHS	2,440

It will be noticed in the table which follows that the death rate per 100,000 for males is higher than the female rate in every State with the exception of Victoria and Tasmania. For the Commonwealth as a whole the rates for the sexes are almost identical.

DEATH RATES^(a) FROM CANCER AND PROPORTION OF 10,000 TOTAL DEATHS, COMMONWEALTH, 1921.

State	Death Rates (a) from Cancer.			Proportion of 10,000 Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	85	83	84	797	1,010	889
Victoria	91	99	95	794	1,034	906
Queensland	88	69	79	807	907	846
South Australia	96	88	92	900	933	915
Western Australia	90	79	85	724	968	813
Tasmania	72	96	83	660	980	810
Northern Territory	176	..	128	714	..	625
Federal Territory .. ..	..	..	..	..	..	..
Commonwealth	88	87	87	796	994	882

(a) Number of deaths from Cancer per 100,000 of mean population.

While in recent years the death rate from tuberculosis has shewn a tendency to decrease, that for cancer has displayed an almost continuous increase. From the table given hereunder, it will be seen that for each of the years under review, the death rate for cancer has been greater than that for tuberculosis, the excess varying from 3 per 100,000 persons in 1915 to 19 in 1921. Taking the sexes separately, however, the rate for males for tuberculosis exceeded that for cancer in 1915, 1916, and 1919. During the whole period the mortality of females from cancer was always greater than that from tuberculosis.

DEATH RATES^(a) FROM TUBERCULOSIS AND CANCER, 1915 TO 1921.

Year.	Death Rate (a) from Tuberculosis.			Death Rate (a) from Cancer.		
	Males.	Females.	Total.	Males.	Females.	Total.
1915	79	64	71	75	74	74
1916	86	64	75	82	79	80
1917	81	55	69	84	78	81
1918	82	59	70	91	78	84
1919	90	62	76	88	82	85
1920	79	55	67	86	82	84
1921	78	56	68	88	87	87

(a) Number of deaths per 100,000 of mean population.

The following table shews the death rate of the Commonwealth in comparison with other countries :—

CANCER—DEATHS PER 100,000 PERSONS LIVING.

Country.	Year.	Rate.	Country.	Year.	Rate.
Ceylon	1920	10	France	1911	80
Rumania	1914	13	Austria	1912	81
Serbia	1911	14	United States (Regis-		
Jamaica	1915	17	tration Area) ..	1919	81
Chile	1914	36	Prussia	1913	83
Hungary	1912	47	New Zealand ..	1921	85
Quebec (Canada) ..	1919	51	Australia	1921	87
South Africa Union			Germany	1913	91
(Whites)	1919	55	Norway	1917	96
Denmark	1914	58	England and Wales	1919	96
Spain	1919	60	Sweden	1915	106
Italy	1917	64	Netherlands ..	1915	109
Japan	1918	70	United Kingdom ..	1919	110
Belgium	1912	71	Scotland	1921	122
Ontario (Canada) ..	1919	77	Switzerland ..	1918	124
Ireland	1919	79			

The fifth issue of this Year Book contains, on pages 230, *et seq.*, a paper dealing, *inter alia*, with the incidence of cancer in the Commonwealth.

(xvii) *Meningitis*. Deaths from this cause increased seriously in 1915 and 1916, since when they have steadily declined, the deaths during 1921 from cerebro-spinal meningitis being 63, and those from all other forms of meningitis 495. Of the former, 28 occurred in New South Wales, 17 in Victoria, 11 in Queensland, 6 in South Australia, and 1 in Tasmania.

(xviii) *Apoplexy, Hæmorrhage and Softening of the Brain*. The deaths registered under this heading have been remarkably steady during the period under review. The figures for 1921 are made up as follows:—Cerebral hæmorrhage and apoplexy, 1,190 males and 1,171 females; softening of the brain, 54 males and 57 females.

(xix) *Organic Diseases of the Heart*. The number of deaths registered in 1921 was 5,166, viz., 2,895 males and 2,271 females. Of these deaths, New South Wales was responsible for 1,080 males and 794 females; Victoria for 815 males and 777 females; Queensland for 424 males and 256 females; South Australia for 297 males and 250 females; Western Australia for 159 males and 75 females; Tasmania for 118 males and 119 females; and the Northern Territory for 2 males. To the figures for 1921 correspond the following death rates and proportions per 10,000 deaths :—

DEATH RATES(a) FROM ORGANIC HEART DISEASE AND PROPORTION OF 10,000 TOTAL DEATHS, COMMONWEALTH, 1921.

State.	Death Rates (a) from Organic Heart Disease.			Proportion of 10,000 Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	101	77	89	940	930	936
Victoria	108	100	104	941	1,036	985
Queensland	105	71	89	964	933	952
South Australia	119	101	110	1,119	1,074	1,098
Western Australia	90	48	70	720	590	672
Tasmania	110	113	111	1,012	1,154	1,079
Northern Territory	70	..	51	286	..	250
Federal Territory	..	..	..	..	..	..
Commonwealth	104	85	95	945	969	955

(a) Number of deaths from Organic Heart Disease per 100,000 of mean population.

(xx) *Acute Bronchitis*. The classification of causes of death requires deaths of persons under five years of age, which are merely ascribed to "bronchitis," to be classified under "acute bronchitis," and similarly certified deaths of older persons under "chronic bronchitis." This rule has been followed throughout in compiling the tables for 1915-1921, with the result that acute bronchitis is credited with 489 deaths in 1915, 512 in 1916, 321 in 1917, 399 in 1918, 420 in 1919, 398 in 1920, and 386 deaths in 1921, viz., 209 males and 177 females.

(xxi) *Chronic Bronchitis*. The adjustment mentioned in the preceding paragraph gives a total of 816 deaths in 1921.

(xxii) *Pneumonia*. The 1921 figures were 1,209 males and 857 females, a total of 2,066 deaths.

(xxiii) *Other Diseases of the Respiratory System*. This head was established in 1910, the figures previously being included in "Other Diseases" (paragraph xxxvii). Deaths in 1915 were 2,212; in 1916, 2,243; in 1917, 1,941; in 1918, 2,199; in 1919, 2,413; in 1920, 2,527; and in 1921, 2,304. The total for 1921 is made up as follows, viz.:—Diseases of the nasal fossae, 4 deaths; diseases of the larynx, 88 deaths; diseases of the thyroid body, 31 deaths; broncho-pneumonia, 1,175 deaths; pleurisy, 203 deaths; pulmonary congestion and apoplexy, 222 deaths; gangrene of the lung, 25 deaths; asthma, 192 deaths; pulmonary emphysema, 14 deaths; fibroid phthisis (miners' complaint), 272 deaths; other diseases of the respiratory system (tuberculosis excepted), 78 deaths.

(xxiv) *Diseases of the Stomach (Cancer excepted)*. In 1921 this heading includes ulcer of the stomach, 98 males, 52 females; and other diseases of the stomach (cancer excepted), 137 males, 152 females; a total of 439 deaths for this class.

(xxv) *Diarrhœa and Enteritis (Children under two years only)*. The number of deaths due to these causes is always a large one, varying from 1,719 in 1917 to a maximum of 3,067 in 1920. The total for 1921 was 2,589. During 1921, 10,559 children died before reaching their second birthday, and of these, 2,589, or almost 25 per cent., died from diarrhœa and enteritis. The age distribution of children dying from these diseases during the first year of life will be found on page 141.

The following are the number of deaths, the death rates, and proportions of 10,000 deaths due to infantile diarrhœa and enteritis in the States and Territories for the year 1921:—

DEATH RATES (a) FROM INFANTILE DIARRHŒA AND ENTERITIS, AND PROPORTIONS OF TOTAL DEATHS, COMMONWEALTH, 1921.

State.	Number of Deaths from Infantile Diarrhœa and Enteritis.			Death Rates (a) from Infantile Diarrhœa and Enteritis.			Proportions of Total Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	543	429	972	51	42	46	473	503	485
Victoria.. ..	413	306	719	55	39	47	477	408	445
Queensland ..	143	127	270	35	35	35	325	463	378
South Australia ..	136	115	251	55	46	50	512	494	504
Western Australia	136	100	236	77	64	71	616	787	678
Tasmania ..	74	66	140	69	62	66	635	640	637
Northern Territory	..	1	1	..	93	26	..	1,000	125
Commonwealth	1,445	1,144	2,589	52	43	47	471	488	479

(a) Number of deaths from these diseases per 100,000 of mean population.

(xxvi) *Appendicitis and Typhlitis*. Deaths numbered 356 in 1915, 321 in 1916, 321 in 1917, 371 in 1918, 352 in 1919, 382 in 1920, and 351 in 1921, viz., 198 males and 153 females.

(xxvii) *Hernia, Intestinal Obstruction.* The number of deaths has not varied greatly from year to year, the number registered in 1921 being 480, viz., 248 males and 232 females.

(xxviii) *Cirrhosis of the Liver.* There is little variation in the number of deaths from 1915 to 1921. 323 deaths were registered in 1921, viz., 227 males and 96 females.

(xxix) *Nephritis and Bright's Disease.* The number of deaths attributable to these diseases from year to year is a very large one. In 1915, there were 2,274, 1,413 males and 861 females; in 1916, 2,329, 1,416 males and 913 females; in 1917, 2,203, 1,343 males and 860 females; in 1918, 2,144; in 1919, 2,221; in 1920, 2,286; and in 1921, 2,139, viz., 1,235 males and 904 females. Of the deaths registered in 1921, those of 78 males and 52 females were ascribed to acute nephritis, and those of 1,157 males and 852 females to Bright's disease. New South Wales was responsible for 785 deaths: Victoria for 712; Queensland for 319; South Australia for 176; Western Australia for 97; and Tasmania for 50.

(xxx) *Non-Cancerous Tumours and other Diseases of the Female Genital Organs.* Deaths in 1915 numbered 139; in 1916, 153; in 1917, 148; in 1918, 159; in 1919, 132; in 1920, 154; and in 1921, 166. Included in the 166 deaths registered in 1921 were the following:—Non-puerperal uterine hæmorrhage, 8; non-cancerous uterine tumours, 40; other diseases of the uterus, 27; cysts and ovarian tumours, 31; salpingitis and other diseases of the female genital organs, 60.

(xxxi) *Puerperal Septicæmia (Puerperal Fever, Puerperal Peritonitis, Puerperal Phlebitis).* The number of deaths is fairly constant, varying from a maximum of 282 in 1916 to a minimum of 166 in 1919. In 1921, there were 208 deaths.

(xxxii) *Other Puerperal Accidents of Pregnancy and Confinement.* The deaths in 1915 numbered 394; in 1916, 411; in 1917, 482; in 1918, 409; in 1919, 404; in 1920, 433; and in 1921, 435. Included in the 435 deaths registered in 1921 were the following:—Accidents of pregnancy, 102; puerperal hæmorrhage, 94; other accidents of childbirth, 60; puerperal albuminuria and convulsions, 141; puerperal phlegmasia alba dolens, embolus, sudden death, 28; death following childbirth, 9; and puerperal diseases of the breast, 1.

(xxxia) *All Puerperal Causes.* The 643 deaths registered in 1921 under the two preceding headings correspond to a death rate of 23 per 100,000 females. It may be expressed in other terms by stating that 1 out of every 210 women confined in 1921 died from puerperal causes. More detailed information will be found in a series of tables in "Bulletin No. 39, Commonwealth Demography."

The ages of the mothers who died varied from 14 to 47 years, and are shewn in the following table:—

AGES OF MOTHERS WHO DIED FROM PUERPERAL CAUSES, COMMONWEALTH, 1921.

Age at Death	Married Women.	Single Women.	Total.	Age at Death.	Married Women.	Single Women.	Total.
16 years ..	..	2	2	33 years ..	39	..	39
17 " ..	3	7	10	34 " ..	30	..	30
18 " ..	4	7	11	35 " ..	24	..	24
19 " ..	8	5	13	36 " ..	26	..	26
20 " ..	9	5	14	37 " ..	31	..	31
21 " ..	17	6	23	38 " ..	30	..	30
22 " ..	12	..	12	39 " ..	23	..	23
23 " ..	22	5	27	40 " ..	10	..	10
24 " ..	20	6	26	41 " ..	11	..	11
25 " ..	30	3	33	42 " ..	9	..	9
26 " ..	33	3	36	43 " ..	11	..	11
27 " ..	29	1	30	44 " ..	8	..	8
28 " ..	37	3	40	45 " ..	1	..	1
29 " ..	30	..	30	46 " ..	3	..	3
30 " ..	21	2	23				
31 " ..	33	..	33	Total deaths	588	55	643
32 " ..	24	..	24				

The total number of children left by the married mothers shewn in the above table was 1,584, an average of 2.7 children per mother.

Forty-seven of the mothers who died had been married less than one year, 93 between one and two years, 44 between two and three years, the duration of marriage ranging up to 29 years, apart from 4 cases in which the date of marriage could not be stated. This tabulation will be found in detail, distinguishing the ages at marriage, in "Bulletin No. 39; Commonwealth Demography," as will a further tabulation shewing in combination the duration of marriage and previous issue.

(xxxiii) *Congenital Debility and Malformations.* The total deaths registered under these heads in 1921 were 3,758, of whom 3,633 were children under one year of age. Over 40 per cent. of the deaths of children under one year of age are due to these causes. The distribution of these deaths among the various States, and the infantile mortality rate, are as follows :—

DEATHS FROM CONGENITAL DEBILITY AND MALFORMATIONS, 1921.

State.	Congenital Malformations.			Premature Birth.			Congenital Debility, Icterus, Sclerema.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	108	102	210	521	363	884	231	133	364
Victoria ..	111	82	193	320	247	567	202	147	349
Queensland ..	49	40	89	159	102	261	56	44	100
South Australia	47	20	67	86	76	162	72	53	125
Western Australia	27	16	43	78	53	131	30	27	57
Tasmania ..	17	15	32	37	41	78	27	18	45
North'n Territory	..	..	..	..	..	..	..	1	1
Commonwealth	359	275	634	1,201	882	2,083	618	423	1,041
Number of deaths under one year per 1,000 births	4.23	3.22	3.74	17.14	13.33	15.29	8.82	6.39	7.64

(xxxiv) *Senile Debility.* The deaths ascribed to "old age" form a large group, and are in excess of those due to infantile debility. In 1921, 3,981 deaths were attributed to this cause, and were distributed among the States as follows : 1,511 occurred in New South Wales, viz., 891 males and 620 females ; 1,305 in Victoria, viz., 610 males and 695 females ; 449 in Queensland, viz., 286 males and 163 females ; 369 in South Australia, viz., 184 males and 185 females ; 191 in Western Australia, viz., 125 males and 66 females ; 147 in Tasmania, viz., 68 males and 79 females ; and 9 males in the Northern Territory.

Of the males whose deaths were described as due to senility, seven were aged between 55 and 59, and the deaths ranged up to nine over the age of 100. Of the females, seven were aged between 55 and 60, and seven were of the age of 100 or over.

(xxxv) *Violence.* A very large number of deaths is due every year to external violence, and, as may be expected from the fact that their occupations expose them much more to accidents, males largely predominate. The figures quoted are exclusive of suicides, which have been treated as a separate group. Deaths ascribed to violence numbered in 1915, 2,851, viz., 2,251 males and 600 females ; in 1916, 2,712, viz., 2,134 males and 578 females ; in 1917, 2,656, viz., 2,069 males and 587 females ; in 1918, 2,641, viz., 2,039 males and 602 females ; in 1919, 2,799, viz., 2,161 males and 638 females ; in 1920, 2,791, viz., 2,159 males and 632 females ; and in 1921, 2,892, viz., 2,301 males and 591 females. Of the deaths registered in 1921, those of 828 males and 189 females occurred in New South Wales ; those of 535 males and 197 females in Victoria ; those of 492 males and 86 females in Queensland ; those of 170 males and 65 females in South Australia ; those of 186 males and 35 females in Western Australia ; those of 85 males and 19 females in Tasmania ; and those of 5 males in the Northern Territory.

The following table shews the various kinds of violent deaths which occurred in 1921, distinguishing males and females :—

DEATHS FROM EXTERNAL VIOLENCE, COMMONWEALTH, 1921.

Cause of Death.	Males.	Females.	Total.
Poisoning by food	31	10	41
Venomous bites and stings	21	8	29
Other acute poisonings.. .. .	31	17	48
Conflagration	5	3	8
Burns (conflagration excepted)	124	123	247
Absorption of deleterious gases (conflagration excepted)	51	31	82
Accidental drowning	473	90	563
Traumatism by firearms	74	8	82
Traumatism by cutting or piercing instruments	4	..	4
Traumatism by fall	249	54	303
Traumatism in mines or quarries	149	..	149
Traumatism by machines	29	..	29
Traumatism by other crushing (vehicles, railways, etc.)	594	88	682
Injuries by animals	41	3	44
Starvation, thirst, fatigue	40	6	46
Excessive cold	2	..	2
Effects of heat	49	46	95
Lightning	6	3	9
Electricity (lightning excepted)	15	..	15
Homicide by firearms	14	6	20
Homicide by cutting or piercing instruments	2	2	4
Homicide by other means	29	23	52
Fractures (cause not specified)	114	48	162
Other external violence	154	22	176
Total Deaths	2,301	591	2,892
Death Rate per 100,000 of mean population	84	22	53

In every kind of violent death there was, therefore, an excess of males, with the exception of homicide by cutting or piercing instruments.

(xxxvi) *Suicide.* It may be said that suicides have remained fairly stationary during recent years, the number in 1915 having been 658, viz., 536 males and 122 females; in 1916, 577, viz., 466 males and 111 females; in 1917, 502, viz., 408 males and 94 females; in 1918, 498, viz., 408 males and 90 females; in 1919, 546, viz., 440 males and 106 females; in 1920, 636, viz., 516 males and 120 females; and in 1921, 621, viz., 510 males and 111 females.

The modes adopted by persons who committed suicide in the years 1915 to 1921 were as follows :—

MALE AND FEMALE SUICIDES (MODES ADOPTED), COMMONWEALTH, 1915 TO 1921.

Mode of Death.	Males.		Females.		Total.	
	Total of 6 years. 1915-20.	1921.	Total of 6 years. 1915-20.	1921.	Total of 6 years. 1915-20.	1921.
Poisoning	496	95	294	54	790	149
Asphyxia	11	4	8	1	19	5
Hanging or Strangulation	386	68	98	13	484	81
Drowning	201	60	109	22	310	82
Firearms	1,008	168	45	8	1,053	176
Cutting instruments	536	90	41	5	577	95
Precipitation from a height	27	8	23	4	50	12
Crushing	48	9	11	3	59	12
Other Modes	61	8	14	1	75	9
Total	2,774	510	643	111	3,417	621

The death rates from suicide and the proportion per 10,000 of total deaths borne by suicides are shewn in the following table :—

DEATH RATES (a) FROM SUICIDE AND PROPORTION OF TOTAL DEATHS, COMMONWEALTH, 1921.

State.	Number of Deaths.			Death Rates (a) from Suicide.			Proportion of 10,000 Deaths.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
New South Wales	173	53	226	16	5	11	151	62	113
Victoria ..	133	25	158	18	3	11	154	33	98
Queensland ..	88	17	105	22	5	14	200	62	147
South Australia ..	41	7	48	16	3	10	154	30	96
Western Australia	63	6	69	36	4	21	285	47	198
Tasmania ..	11	3	14	10	3	7	94	29	64
Northern Territory	1	..	1	35	..	26	143	..	125
Commonwealth	510	111	621	18	4	11	166	47	115

(a) Number of deaths from suicide per 100,000 of mean population.

From the following table, which shews the ages of the persons who committed suicide in 1921, it will be seen that both extreme youth and extreme old age are represented :—

AGES OF PERSONS WHO COMMITTED SUICIDE, COMMONWEALTH, 1921.

Ages.	M.	F.	Total.	Ages.	M.	F.	Total.
10 years and under 15	1	..	1	60 years and under 65	46	4	50
15 " " 20	9	7	16	65 " " 70	35	2	37
20 " " 25	28	4	32	70 " " 75	9	4	13
25 " " 30	42	16	58	75 " " 80	8	..	8
30 " " 35	41	20	61	80 " " 85	4	1	5
35 " " 40	47	15	62	85 " " 90	1	..	1
40 " " 45	66	10	76	Not stated	..	5	5
45 " " 50	58	11	69				
50 " " 55	51	8	59				
55 " " 60	59	9	68	Total Deaths ..	510	111	621

The following table shews the occupations of the 510 males who committed suicide :—

**OCCUPATIONS OF MALE PERSONS WHO COMMITTED SUICIDE,
COMMONWEALTH, 1921.**

Occupation.	Deaths.	Occupation.	Deaths.
PROFESSIONAL CLASS—		MANUFACTURING CLASS—	
Government, Defence, Law ..	15	Art and Mechanic Productions	10
Others	17	Textiles and Fibrous Materials	6
DOMESTIC CLASS—		Food and Drinks	5
Board and Lodging	15	Animal and Vegetable Sub-	
Others	5	stances	3
MERCANTILE CLASS—		Metals and Minerals	14
Property and Finance	5	Fuel, Light and Energy	1
Art, Mechanic and Textile Pro-		Building and Construction ..	25
ducts	5	Others	116
Food and Drinks	17	PRIMARY PRODUCERS—	
Animal and Vegetable Sub-		Agricultural	72
stances	2	Pastoral	32
Fuel, Light and Metals	1	Mining and Quarrying	20
Merchants and Dealers	12	Others	7
Others	39	INDEPENDENT MEANS	6
ENGAGED IN TRANSPORT AND		DEPENDENTS	3
COMMUNICATION—		OCCUPATION NOT STATED ..	15
Railways	11		
Roads and Trams	15		
Seas and Rivers	11		
Others	5		
		Total Male Deaths	510

It has been said that suicide has become more frequent during recent years, but an examination of the figures from the year 1871 onwards shews that the assertion needs qualification. The absolute figures have certainly increased, but proportionately to the population the figures for 1916–20 and 1921 were less than those for 1886–90 and 1891–95. The figures for the five years 1911–15, shew, however, a regrettable increase, not only absolutely, but also in proportion to the population. The five years 1916–1920 shew lower figures and percentages than the average of the previous thirty years. No particulars are available for Western Australia prior to 1886, and from 1886 to 1895 the sexes are not distinguished. The figures for the first five periods are, therefore, exclusive of Western Australia :—

SUICIDES, COMMONWEALTH, 1871-75 TO 1921.

Period.	Number of Suicides.			Suicides per One Million.			Suicides of Females to 100 Suicides of Males. Based on—	
	Males.	Females.	Total.	Males.	Females.	Total.	Absolute Figures.	Rates.
1871–75 ..	715	150	865	150.94	37.56	99.07	20.98	24.88
1876–80 ..	878	145	1,023	159.69	31.06	100.62	16.51	19.45
1881–85 ..	999	183	1,182	152.58	32.90	97.61	18.32	21.56
1886–90 ..	1,394	292	(a) 1,686	179.20	43.97	(c) 116.92	20.95	24.54
1891–95 ..	1,574	337	(b) 1,911	181.34	44.09	(d) 117.07	21.41	24.31
1896–1900	1,838	410	2,248	191.11	47.88	123.65	22.31	25.05
1901–05 ..	2,054	380	2,434	201.78	40.88	124.98	18.50	20.26
1906–10 ..	2,031	437	2,468	186.11	43.22	117.39	21.51	23.22
1911–15 ..	2,546	577	3,123	206.15	50.36	131.17	22.66	24.43
1916–20 ..	2,238	521	2,759	175.46	40.93	108.27	23.28	23.33
1921 ..	510	111	621	183.89	41.33	113.76	21.76	22.47

(a) 1705 inclusive of Western Australian figures. (b) 1884 inclusive of Western Australian figures. (c) 116.49 inclusive of Western Australian figures. (d) 119.11 inclusive of Western Australian figures.

In the fifth issue of this Year Book (pp. 240, *et seq.*), the result of a series of investigations into the periodicity of suicide was published. The paper was partly reprinted in the following year (pp. 241, *et seq.*), but is not repeated in the present issue.

(xxxvii) *Other Diseases.* The number of causes included under this heading is a very large one, amounting to no less than 79 of the items shown in the detailed classification, and deaths were recorded under every one of these with the exception of the following:—Glanders, rabies, pellagra, intestinal parasites, amputations, and other diseases of the organs of locomotion. The total number of deaths under "other diseases" in 1915 was 9,090, viz., 5,259 males and 3,831 females; in 1916, 9,433, viz., 5,489 males and 3,944 females; in 1917, 8,871, viz., 5,147 males and 3,724 females; in 1918, 9,226, viz., 5,290 males and 3,936 females; in 1919, 9,390, viz., 5,316 males and 4,074 females; in 1920, 10,048, viz., 5,740 males and 4,308 females; and in 1921, 9,995, viz., 5,627 males and 4,368 females. In accordance with the revised edition of the classification, the following changes were made in this heading during 1910: beri-beri is now included under this heading instead of under (xii), "Other Epidemic Diseases." Other diseases of the respiratory system are now shewn under a new head (xxiii), and appendicitis and typhlitis under head (xxvi). Some of the diseases included here account for very considerable numbers of deaths. Particulars of the deaths included in 1921 are shewn in the following table:—

CAUSES OF DEATHS INCLUDED UNDER "OTHER DISEASES," COMMONWEALTH, 1921.

Causes.	M.	F.	Total.	Causes.	M.	F.	Total.
Purulent Infection and Septicæmia	96	82	178	Diseases of the Veins (Varices, Varicose Ulcers, Hæmorrhoids) ..	5	22	27
Anthrax	5	1	6	Diseases of the Lymphatic System	12	13	25
Tetanus	58	30	88	Hæmorrhages, Other Diseases of Circulatory System ..	45	67	112
Mycoses	1	3	4	Diseases of the Mouth and its Associated Organs ..	10	7	17
Beri-beri	18	1	19	Diseases of the Pharynx ..	39	44	83
Rickets	1	1	2	Diseases of the Esophagus ..	20	5	25
Syphilis	79	51	130	Diarrhœa and Enteritis of Children over two years of age and Adults ..	544	441	985
Gonococcus Infection ..	8	2	10	Ankylostomiasis	5	1	6
Other Tumours (Tumours of the female genital organs excepted)	13	27	40	Other Diseases of the Intestines	52	38	90
Acute Articular Rheumatism ..	112	89	201	Acute Yellow Atrophy of the Liver	3	10	13
Chronic Rheumatism and Gout	66	83	149	Hydatid Tumours of the Liver	30	17	47
Scurvy	2	2	4	Biliary Calculi	33	106	139
Diabetes	260	369	629	Other Diseases of the Liver ..	102	87	189
Exophthalmic Goitre	5	49	54	Diseases of the Spleen	5	5	10
Addison's Disease	6	17	23	Simple Peritonitis (non-puerperal)	53	98	151
Leucæmia	76	65	141	Other Diseases of the Digestive System	21	13	34
Anæmia, Chlorosis	153	212	370	Other Diseases of the Kidneys and their Adnexa ..	103	61	164
Other General Diseases ..	52	35	87	Calculi of Urinary Passages ..	20	12	32
Acute and Chronic Alcoholism ..	125	17	142	Diseases of the Bladder	151	31	182
Chronic Lead Poisoning	18	2	20	Other Diseases of the Urethra, Urinary Abscesses, etc. ..	29	2	31
Other Chronic Poisonings due to Occupations	1	..	1	Diseases of the Prostate	257	..	257
Other Chronic Poisonings ..	..	2	2	Non-venereal Diseases of the Male Genital Organs ..	3	..	3
Encephalitis	106	60	166	Non-puerperal Diseases of the Breast (Cancer excepted) ..	..	4	4
Progressive Locomotor Ataxia ..	70	6	76	Gangrene	58	41	99
Other Diseases of the Spinal Cord	176	127	303	Furuncle	22	8	30
Paralysis without indicated cause	142	133	275	Acute Abscess	67	72	139
General Paralysis of the Insane	127	24	151	Other Diseases of the Skin and Adnexa	29	27	56
Other Forms of Mental Alienation	38	55	93	Non-tuberculous Diseases of the Bones	54	38	92
Epilepsy	134	87	221	Other Diseases of the Joints (Tuberculosis and Rheumatism excepted) ..	6	12	18
Convulsions (non-puerperal) ..	3	11	14	Other Diseases peculiar to Infancy	439	314	753
Convulsions of Children under five years of age	136	134	270	Want of Care (Infants) ..	4	7	11
Chorea	3	1	4				
Neuralgia and Neuritis	18	7	25				
Other Diseases of the Nervous System	149	126	275				
Diseases of the Eye	1	1	2				
Diseases of the Ear	28	25	53				
Pericarditis	60	24	84				
Acute Endocarditis	263	241	504				
Angina Pectoris	92	51	143				
Diseases of the Arteries, Atheroma, Aneurism ..	554	273	827				
Embolism and Thrombosis ..	146	239	385				
				Total Deaths	5,627	4,368	9,995

(xxxviii) *Unspecified or Ill-defined Diseases.* The number of cases which has to be included here is a considerable one from year to year, comprising 717 in 1915, 633 in 1916, 667 in 1917, 664 in 1918, 707 in 1919, 805 in 1920, and 721 in 1921. The detailed classification distinguishes these ill-defined diseases under three headings:—Ill-defined organic diseases, including such definitions as dropsy, anasarca, ascites, general oedema, etc., sudden death, including syncope; and unspecified or ill-defined causes, of which the following are specimens:—Asthenia, coma, dentition, exhaustion, heart failure, etc. In 1921 the number of cases of death which would have to be classed under the first of these categories was 22; those belonging to the second, 44; and those belonging to the third, 655. It is, of course, true that there must always occur some cases where the disease is not well characterised, or where sufficient information is not procurable to allow of a clear definition being given in the certificate of death, but in the majority of cases included under this heading a more complete diagnosis and consequently a more satisfactory certificate would no doubt have been possible.

19. Causes of Death in Classes.—The figures presented in the preceding paragraphs relate to certain definite causes of death. It is almost generally acknowledged that figures of this kind are of greater value in medical statistics than is a classification under general headings. The classification under fourteen general headings adopted by the compilers of The International Nomenclature is, however, shewn in the following table, together with the death rates and percentages on total deaths pertaining to those classes:—

DEATHS, DEATH RATES (a), AND PROPORTION OF 10,000 DEATHS IN CLASSES, COMMONWEALTH, 1921.

Class.	Total Deaths.			Death Rates. (a)			Proportion of 10,000 Deaths.		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
1. General diseases	7,223	6,287	13,510	260	234	247	2,357	2,684	2,498
2. Diseases of the Nervous System and of the Organs of Special Sense	2,721	2,237	4,958	98	83	91	888	955	917
3. Diseases of the Circulatory System	4,072	3,201	7,273	147	119	133	1,328	1,367	1,345
4. Diseases of the Respiratory System	3,245	2,327	5,572	117	87	102	1,059	993	1,031
5. Diseases of the Digestive Organs	3,270	2,701	5,971	118	101	109	1,067	1,153	1,104
6. Diseases of the Genito-Urinary System and Adnexa	1,798	1,180	2,978	65	44	55	587	504	551
7. Puerperal Condition .. ..	..	643	643	..	23	12	..	275	119
8. Diseases of the Skin and of the Cellular Tissue	176	148	324	6	6	6	57	63	60
9. Diseases of the Organs of Locomotion	60	50	110	2	2	2	20	21	20
10. Malformations	359	275	634	13	10	12	117	117	117
11. Infancy	2,282	1,626	3,888	82	61	72	738	694	719
12. Old Age	2,173	1,808	3,981	78	67	73	709	772	736
13. Violence	2,811	702	3,513	102	26	64	916	300	650
14. Ill-defined Diseases	482	239	721	17	9	13	157	102	133
Total	30,652	23,424	54,076	1,105	872	991	10,000	10,000	10,000

(a) Number of deaths per 100,000 of mean population.

20. Deaths of Children under one Year.—"Bulletin No. 39; Commonwealth Demography," contains tables shewing for twenty-three causes the age at death of children dying during the first year of life. In the Bulletin mentioned, the particulars are

published for males and females separately for the Commonwealth, but the totals for the Commonwealth only are here shewn for both sexes combined :—

DEATHS OF CHILDREN UNDER ONE YEAR, COMMONWEALTH, 1921.

Age at Death.	Measles.	Whooping Cough.	Diphtheria and Croup.	Erysipelas.	Pulmonary Tuberculosis.	Tubercular Meningitis.	Tuberculosis, other forms.	Syphilis.	Simple Meningitis.	Cerebro-Spinal Meningitis.	Convulsions.	Acute Bronchitis.
Under 1 week ..	..	..	1	..	..	..	..	7	5	..	81	7
1 week and under 2 ..	..	..	1	1	..	..	..	2	6	..	25	12
2 weeks ..	2	6	3	2	..	..	..	3	4	..	5	9
3 ..	1	2	3	2	..	..	..	5	2	..	4	21
1 month ..	3	48	12	13	1	..	..	20	9	2	11	52
2 months ..	3	60	6	6	..	1	..	14	6	1	7	22
3 ..	..	22	8	..	1	1	2	7	7	..	8	24
4 ..	..	23	2	1	3	..	..	5	11	..	8	8
5 ..	1	14	4	1	..	4	1	4	11	..	11	5
6 ..	..	16	4	2	..	3	1	1	22	1	4	12
7 ..	1	15	6	1	..	6	1	2	17	..	6	11
8 ..	2	20	2	..	1	1	1	1	18	..	10	8
9 ..	4	15	9	2	..	1	2	3	9	..	7	7
10 ..	3	18	9	1	1	3	..	2	13	..	9	2
11 ..	..	10	10	..	2	5	1	..	10	..	1	4
Total under 1 year ..	21	289	80	32	9	25	11	76	150	4	197	204
Number of deaths from each cause per 1,000 births ..	0.15	1.97	0.59	0.24	0.07	0.18	0.08	0.56	1.10	0.03	1.45	1.50

Age at Death.	Broncho-Pneumonia.	Pneumonia.	Pleurisy.	Other Diseases of Stomach.	Diarrhoea and Enteritis.	Hernia and Intestinal Obstruction.	Malformations.	Premature Birth.	Congenital Debility, Icterus and Sclerema.	Other Diseases peculiar to Early Infancy.	Lack of Care.	Other Causes.	Total.
Under 1 week ..	5	18	1	7	17	10	235	1,622	388	627	10	86	3,127
1 week and under 2 ..	17	9	..	..	23	7	65	152	103	56	..	40	519
2 weeks ..	20	10	..	4	29	2	26	99	60	29	..	49	362
3 ..	13	7	..	3	20	1	16	62	34	16	..	23	235
1 month ..	75	47	..	9	147	5	44	93	132	15	..	68	806
2 months ..	55	17	1	14	209	4	37	25	89	3	1	43	624
3 ..	40	29	..	10	253	7	21	10	69	1	..	32	552
4 ..	33	25	..	6	237	7	11	5	50	5	..	35	476
5 ..	27	22	1	7	192	10	12	7	38	..	..	29	401
6 ..	22	23	..	6	202	6	13	3	14	..	..	18	375
7 ..	20	14	..	7	170	10	12	2	13	..	..	26	340
8 ..	19	15	3	8	164	5	6	3	21	..	..	27	335
9 ..	23	9	4	7	144	3	4	..	14	..	..	21	288
10 ..	23	23	4	3	126	..	4	..	6	..	..	17	267
11 ..	27	18	2	5	112	1	3	..	10	1	..	25	245
Total under 1 year ..	419	284	16	96	2,045	78	509	2,083	1,041	753	11	539	8,952
Number of deaths from each cause per 1,000 births ..	3.08	2.08	0.12	0.71	15.01	0.57	3.74	15.29	7.64	5.53	0.08	3.96	65.73

It will be seen that the maximum number of deaths from convulsions, malformations, premature birth, congenital debility, icterus and sclerema, other diseases peculiar to early infancy, and lack of care, occurred during the first month of life, while acute bronchitis, broncho-pneumonia and pneumonia were most fatal during the second month. Diarrhoea and enteritis carried off more children in the fourth and fifth months than in any other, the numbers gradually decreasing toward the end of the year. Whooping cough reached its maximum during the second and third months of life.

21. Ages at Death of Married Males and Females, and Issue.—“Bulletin No. 39. Commonwealth Demography” contains a number of tables for the Commonwealth, shewing the age at marriage, age at death, duration of life after marriage, birthplaces, and occupations, in combination with the issue of married persons who died in 1921. A short summary of the tables mentioned is given hereunder. Deaths of married males

in 1921 numbered 14,907, and of married females, 13,973. The tabulations which follow deal, however, with only 14,552 males and 13,760 females, the information in the remaining 568 cases being too incomplete to be utilised. The total number of children in the families of the 14,552 males was 72,352; and of the 13,760 females, 69,544. The average number of children is shown for various age-groups in the following table:—

AGES AT DEATH OF MARRIED MALES AND FEMALES, AND AVERAGE ISSUE, COMMONWEALTH, 1921.

Average Family of Males.			Average Family of Females.		
Age at Death.			Age at Death.		
Under 20 years	..	0.77	70 to 74 years	..	6.06
20 to 24 years	..	1.22	75 " 79 "	..	6.66
25 " 29 "	..	1.86	80 " 84 "	..	6.89
30 " 34 "	..	2.45	85 " 89 "	..	7.18
35 " 39 "	..	3.29	90 " 94 "	..	7.21
40 " 44 "	..	3.66	95 " 99 "	..	6.97
45 " 49 "	..	3.76	100 years and upwards	..	9.20
50 " 54 "	..	4.23	Age not stated	..	5.36
55 " 59 "	..	4.69			
60 " 64 "	..	5.39			
65 " 69 "	..	5.86			
			All ages	..	4.97
					5.05

The figures shown in the preceding table include the issue both living and dead, the proportion between them, taking the issue of deceased males and females together, being about 1,000 to 293. The totals are shown in the following table:—

ISSUE OF MARRIED MALES AND FEMALES, COMMONWEALTH, 1921.

Issue of Married Males.	Males.	Females.	Total.	Issue of Married Females.	Males.	Females.	Total.
Living	28,359	28,744	57,103	Living	26,125	26,502	52,627
Dead	8,521	6,728	15,249	Dead	9,408	7,509	16,917
Total	36,880	35,472	72,352	Total	35,533	34,011	69,544

These figures show a masculinity in the births of 2.07, which agrees fairly well with the experience of the birth statistics.

22. **Ages at Marriage of Males and Females, and Issue.**—While the table giving the average families of married males and females naturally shows an increase in the averages with advancing ages at death, the following table, which gives the average families of males and females according to the age at marriage of the deceased parents, shows a corresponding decrease in the averages as the age at marriage advances:—

AGES AT MARRIAGE OF MALES AND FEMALES, AND AVERAGE ISSUE, COMMONWEALTH, 1921.

Average Family of Males.				Average Family of Females.			
Age at Marriage.				Age at Marriage.			
Under 20 years	..	..	6.32	Under 20 years	..	..	6.97
20 to 24	..	..	6.05	20 to 24	..	..	5.50
25 " 29 "	..	..	5.17	25 " 29 "	..	..	4.09
30 " 34 "	..	..	4.45	30 " 34 "	..	..	2.66
35 " 39 "	..	..	3.90	35 " 39 "	..	..	1.61
40 " 44 "	..	..	2.67	40 " 44 "	..	..	0.62
45 " 49 "	..	..	2.20	45 " 49 "	..	..	0.03
50 " 54 "	..	..	1.70	50 " 54 "	..	..	..
55 " 59 "	..	..	1.30	55 " 59 "	..	..	..
60 " 64 "	..	..	0.33	60 " 64 "	..	..	..
65 years and upwards	..	..	0.25	65 years and upwards	..	..	..
Age not stated	..	..	4.93	Age not stated	..	..	5.41
All ages	..	..	4.97	All ages	..	..	5.05

23. **Duration of Life after Marriage of Males and Females.**—The duration of life after marriage has been tabulated for males and females both in combination with the age at marriage, and with the total and average issue. The tables shewing the result do not, however, lend themselves to condensation, and are, therefore, omitted here. They will be found in "Bulletin No 39 of Commonwealth Demography," pages 211 to 216.

24. **Birthplaces of Married Males and Females, and Issue.**—The following table shews the birthplaces of married males and females whose deaths were registered in 1921, together with their average issue. No generalisations can, of course, be made in those cases where the number of deaths is small, and where the average family had to be worked out on small figures. But where the figures are comparatively large, as in the case of natives of the Commonwealth, differences occur between the averages of the individual States which appear inexplicable on any other ground than that of different age constitution of the local-born population of the various States. It will be noted that the differences occur both in the male and female averages. Although the figures apply to the Commonwealth as a whole, it must be borne in mind that the vast majority of deaths of natives of any one State are registered in that particular State.

BIRTHPLACES OF MARRIED MALES AND FEMALES, AND AVERAGE ISSUE, COMMONWEALTH, 1921.

Birthplace.	Married Males.		Married Females.		Birthplace.	Married Males.		Married Females.	
	Deaths.	Average Family.	Deaths.	Average Family.		Deaths.	Average Family.	Deaths.	Average Family.
New South Wales	2,678	5.08	2,868	5.05	Straits Settlements	1	1.00	..	..
Victoria ..	2,497	4.09	2,338	4.04	Other Asiatic Bri-	..	..	..	..
Queensland ..	452	3.73	529	3.88	tish Possessions ..	2	3.00	..	..
South Australia ..	952	4.62	986	4.43	China ..	67	3.13	..	8.00
Western Australia	93	5.66	112	4.43	Japan ..	3	1.00	1	..
Tasmania ..	552	4.80	597	5.21	Philippine Islands ..	4	3.75	..	..
Northern Territory	..	..	2	3.00	Syria ..	8	6.75	8	4.38
New Zealand ..	119	3.65	89	3.49	Other Asiatic C'tries	1	..	1	2.00
England ..	3,723	5.35	3,077	5.43	Mauritius ..	5	5.40	3	8.33
Wales ..	133	5.19	103	5.43	Union of Sth. Africa	16	4.75	9	5.00
Scotland ..	901	5.45	850	5.88	Other African C'tries	1	..	2	4.00
Ireland ..	1,376	5.76	1,671	5.92	Barbadoes ..	..	..	1	12.00
Isle of Man ..	3	7.33	1	5.00	Canada ..	34	4.97	13	5.38
Other European Bri-	..	..	..	..	Jamaica ..	3	4.67	..	..
tish Possessions	20	4.65	11	6.73	Newfoundland ..	4	2.00	3	4.33
Austria-Hungary	16	4.19	6	4.50	Other American Bri-	..	..	..	..
Belgium ..	3	3.67	1	..	tish Possessions	4	4.75	3	5.00
Denmark ..	79	5.35	31	5.23	Argentine Republic	1	2.00	1	6.00
France ..	40	4.35	15	4.13	Brazil ..	1	5.00	1	7.00
Germany ..	345	6.12	219	7.01	Chile ..	..	..	1	1.00
Greece ..	19	4.58	..	..	United States ..	53	3.91	29	4.86
Italy ..	37	4.59	13	3.54	Other American	..	..	..	..
Netherlands ..	9	5.44	2	3.00	Countries ..	5	7.40	7	4.14
Norway ..	24	4.54	4	6.00	Fiji ..	1	3.00	1	5.00
Portugal ..	4	9.50	..	..	New Hebrides ..	1	1.00	..	..
Russia ..	41	4.90	24	5.17	Samoa ..	1	9.00	..	..
Spain ..	3	5.33	3	1.00	Other Polynesian Is.	..	..	3	6.00
Sweden ..	48	4.44	13	4.54	S. Sea Islds.(so descd.)	4	2.25	1	2.00
Switzerland ..	26	4.65	7	4.00	At Sea ..	62	6.34	37	6.65
Other Europ. C'tries.	10	2.90	2	2.50	Not stated ..	32	3.09	40	4.50
British India ..	35	3.40	17	4.41					
Ceylon ..	..	..	2	5.00	Total	14,552	4.97	13,760	5.05

25. **Occupations of Married Males, and Issue.**—A final tabulation shews the average issue in combination with the occupation of deceased males. When these figures are available for a number of years they will afford some clue to the much debated question as to the decrease in the birth rate among various classes of the population.

OCCUPATIONS OF MARRIED MALES, AND AVERAGE ISSUE, COMMONWEALTH, 1921.

Occupation.	Deaths of Married Males.	Average Family.	Occupation.	Deaths of Married Males.	Average Family.
PROFESSIONAL CLASS—			MANUFACTURING CLASS—		
Government, Defence, and Law	373	4.00	Art and Mechanic Products	640	4.69
Others	553	4.06	Textiles and Fibrous Materials	306	4.98
DOMESTIC CLASS—			Food and Drinks ..	183	5.07
Board and Lodging ..	346	3.36	Animal and Vegetable Sub-		
Others	206	3.87	stances	41	5.32
MERCANTILE CLASS—			Metals and Minerals ..	401	5.18
Property and Finance ..	224	3.72	Fuel, Light and Energy ..	59	3.61
Art, Mechanic and Textile			Building and Construction ..	913	4.05
Products	104	4.21	Others	2,543	4.98
Food and Drinks	430	4.58	PRIMARY PRODUCERS—		
Animal and Vegetable Sub-			Agricultural	2,359	6.23
stances	74	5.57	Pastoral	594	5.70
Fuel, Light and Metals ..	33	4.67	Mining and Quarrying ..	914	5.02
Merchants and Dealers ..	395	4.57	Others	116	4.53
Others	717	3.70	INDEPENDENT MEANS ..	352	5.31
ENGAGED IN TRANSPORT AND			DEPENDENTS	15	4.00
COMMUNICATION—			OCCUPATION NOT STATED ..	407	5.65
Railways	406	4.99			
Roads and Trams	466	4.49			
Seas and Rivers	277	4.53			
Others	105	4.13			
			Total	14,552	4.97

In the fifth issue of this Year Book (pp. 227 to 229), a series of observations was published dealing with the Commonwealth Rates of Infantile Mortality. These observations are not reprinted in the present issue.

§ 4. Legislation relating to Registration of Births, Deaths, and Marriages, and Legitimation of Children.

A review of the legislation relative to the above subject appeared in the thirteenth issue of this Year Book, pages 212-255. There has been no alteration in the laws dealing with this subject since the issue referred to.

§ 5. Graphical Representation of Vital Statistics.

1. **General.**—The progressive fluctuations of the numbers representing the total births and marriages are important indexes of the economic conditions and social ideals of a community. For this reason graphs have been prepared (see pages 105 and 106), shewing these fluctuations from 1860 to 1921, both for the States and the Commonwealth. The facts are very significant from the national point of view, and call for serious consideration. To appreciate the situation properly, it should be remembered that, normally, the increase of births and also of marriages will be similar to the increase of population. Although the marriage curve shews a falling off in marriages after 1891 (see page 106), it shews a recovery in 1894, and, with the exception of a small fall for 1903, it continually advanced until 1915. In 1916, 1917, and 1918 a heavy falling off was recorded, unquestionably owing to the European War. There was a rapid recovery in 1919 and 1920, the figures for the latter year being the highest ever recorded. The total for 1921, while not so great as for 1920, was in excess of the numbers registered before the latter year. The same characteristic is not seen in the curve of births, which, from 1904 onwards, rose continually to 1914, then declined to 1919, and recovered again in 1920 and 1921.

ACTUAL BIRTHS, DEATHS, AND MARRIAGES

EXPERIENCED IN THE COMMONWEALTH DURING THE YEARS 1890 TO 1921, COMPARED WITH THE NUMBER THAT WOULD HAVE OCCURRED IF THE RATES OF 1890 HAD REMAINED IN OPERATION.

Year.	BIRTHS.		DEATHS.		MARRIAGES.	
	Actual.	Number of Births that would have been experienced if the 1890 birth rate had been in operation.	Actual.	Number of Deaths that would have been experienced if the 1890 death rate had been in operation.	Actual.	Number of Marriages that would have been experienced if the 1890 marriage rate had been in operation.
1890 ..	108,683		44,449		23,725	
1891 ..	110,187	111,802	47,430	45,737	23,862	24,419
1892 ..	110,158	114,502	42,268	46,842	22,049	25,009
1893 ..	109,322	116,617	45,801	47,707	20,631	25,470
1894 ..	104,660	118,734	42,958	48,573	20,625	25,933
1895 ..	105,084	111,002	43,080	49,501	21,564	26,428
1896 ..	100,134	123,212	45,202	50,405	23,068	26,911
1897 ..	101,137	125,419	43,447	51,308	23,993	27,393
1898 ..	98,845	127,371	51,406	52,106	24,472	27,819
1899 ..	100,638	129,088	47,629	52,809	25,958	28,194
1900 ..	102,221	130,848	44,060	53,529	27,101	28,579
1901 ..	102,945	132,599	46,330	54,245	27,753	28,961
1902 ..	102,776	134,603	48,078	55,065	27,926	29,399
1903 ..	98,443	136,189	47,293	55,714	25,977	29,745
1904 ..	104,113	137,917	43,572	56,420	27,682	30,122
1905 ..	104,941	139,959	43,514	57,256	29,004	30,569
1906 ..	107,890	142,030	44,333	58,103	30,410	31,021
1907 ..	110,347	144,248	45,305	59,011	32,470	31,505
1908 ..	111,545	146,720	46,426	60,022	32,551	32,045
1909 ..	114,071	149,526	44,172	61,170	33,775	32,658
1910 ..	116,801	152,869	45,590	62,537	36,592	33,387
1911 ..	122,193	157,138	47,869	64,283	39,482	34,320
1912 ..	133,088	162,807	52,177	66,603	42,147	35,559
1913 ..	135,714	168,660	51,789	68,997	41,594	36,837
1914 ..	137,983	173,024	51,720	70,783	43,311	37,790
1915 ..	134,871	174,380	52,782	71,337	45,224	38,080
1916 ..	131,426	173,078	54,197	70,805	40,289	37,802
1917 ..	129,965	173,075	48,029	70,803	33,666	37,801
1918 ..	125,739	175,945	50,249	71,978	33,141	38,428
1919 ..	122,290	181,795	65,930	74,370	40,540	39,706
1920 ..	136,406	187,496	56,289	76,703	51,552	40,951
1921 ..	136,198	190,951	54,076	78,116	46,869	41,706

The foregoing table shows the number of births marriages, and deaths which would have been experienced had the rate for 1890 continued, and reveals the significance of the facts disclosed by the curves. It may be remarked that the death rate has greatly improved, and among other countries Australia stands in a very favourable position in this respect. At the same time the still more serious decline in the birth rate, in a country but sparsely populated, has an obvious and most important bearing on the national future, and on the extent to which it is desirable to promote immigration.

2. Graphs of Annual Births, Commonwealth and States (page 105).—A striking feature of the graphs of births is the practically continuous increase in the number of births exhibited in the graph for the Commonwealth from 1860 to 1891, and the marked variations of subsequent years. As the curve clearly shews, a turning point in the number of births occurred in 1891, whilst, as regards the separate States, New South Wales and Tasmania date their decline in number from 1893, Victoria from 1891, and

Queensland from 1890. In South Australia the corresponding decline took place as early as 1885, while in Western Australia the increase in number of births has been practically continuous to 1913.

It is of special interest to note the decline in births associated with the commercial crisis of 1891-3, also that occurring in 1903, an accompaniment of the severe drought of that period.

In the case of New South Wales the graph crosses that of Victoria in 1879, *i.e.*, the births for that year were sensibly identical in the two States. A fairly continuous increase was experienced in the former State from 1860 to 1893, the only marked fluctuation being a sudden decline in 1889 and an equally rapid recovery in 1890. From 1893 to 1898 a somewhat rapid decline again took place, succeeded by a rise, the continuity of which was broken only by a sharp decline in 1903 and recovery in 1904. From 1904 to 1914 there was a gradual rise, followed by a decline which lasted till 1919. The number of births registered in 1921 in New South Wales was the highest on record.

In the case of Victoria the graph shews the increase between 1860 and 1880 to have been comparatively slight, the curve being a gradual rise, with fluctuations more or less marked to 1873, and a subsequent decline. From 1880 to 1891 the increase in the number of births is seen to be very rapid and practically continuous, while from 1891 to 1898 an equally sharp and continuous decline was experienced. A further rise and fall took place between 1898 and 1903, succeeded by a continuous rise from the last-mentioned year to 1907, and a slight fall in 1908, followed by a recovery in 1909. A slight fall in 1910 was followed by a continuous rise to 1914, since which year a continuous decline till 1919 was experienced. There was a substantial increase in the number of registrations during 1920, which was, however, not maintained in 1921.

Starting in 1860 with a lower number of births than any State except Western Australia, the Queensland graph shews that the births increased somewhat rapidly until 1867. The equality in the number of births in Queensland and Tasmania in 1864 is shewn by the Queensland curve crossing the Tasmanian curve at the line for that year. From 1867 to 1882 a continuous though somewhat less rapid increase was experienced, followed by a very rapid rise to 1890, in which year Queensland's maximum number of births prior to 1909 was recorded. The South Australian graph is crossed by that of Queensland at the year 1885. From 1890 onwards to 1908 the number of births fluctuated somewhat, but, on the whole, retained a practically stationary position at a height rather less than that of 1890. The most serious variation was a sudden fall in 1903, the drought year, and rapid recovery in 1904, with a further fall in 1905, and a continuous rise from 1906 to 1915. In 1916 there was a sudden fall, followed by a rapid rise in 1917, with another fall during 1918 and 1919. The curve rose in 1920 and 1921.

The South Australian graph shews a slow but practically continuous rise from 1860 to 1885. This rise is followed by a slow but fluctuating decline to 1903, and a slight recovery to 1914. In 1915, 1917 and 1919 and 1921 there were declines and in 1916, 1918 and 1920 there were upward movements.

The Western Australian curve indicates that an increase, which was practically continuous but very slow, took place from 1860 to 1884, and that a somewhat quicker rate of increase, experienced from 1884 to 1896, was succeeded by a still more rapid and very satisfactory rate of increase from 1896 to 1906. A slight fall was apparent to 1910, followed by a rapid rise to 1913. From 1913 to 1919 there was a continuous decline, but this was followed by a recovery in 1920. A further decline occurred during 1921.

The Tasmanian curve may be regarded as made up of five portions, of which the first, from 1860 to 1877, represents a period of very slight variation, with, on the whole, an increase; the second, from 1877 to 1884, a period of continuous and moderately rapid increase; the third, from 1884 to 1893, a period of rapid increase; the fourth, from 1893 to 1898, a period of continuous but slow decrease; and the fifth, from 1898 to 1914, a period of steady recovery. The years 1915 to 1918 were years of decline, but 1919 to 1921 were characterised by increase.

It will be seen that the years in which the highest points were reached by the several curves are as follows:—

State ..	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Year ..	1921	1891	1921	1914	1913	1914	1914

3. Graphs of Annual Marriages, Commonwealth and States (page 106).—The Commonwealth marriage graph from 1860 to 1885 reveals a moderate but somewhat fluctuating increase in the annual number of marriages between 1860 and 1871, a more rapid increase between 1871 and 1879, and a still more rapid increase between 1879 and 1885. From 1885 to 1891 the numbers continued to increase, but with marked fluctuations in magnitude. The financial crisis associated with the period subsequent to the latter year was accompanied by a strongly-marked decline in the number of marriages, which reached its lowest point in 1894. From that year onwards a fairly rapid recovery was effected, the record for 1891 being exceeded by that of 1897. This progress was maintained until 1902, when the severe drought of that and the succeeding year was collateral with a rapid fall in the number of marriages. An equally rapid recovery, however, has since taken place, and the number of marriages in the Commonwealth during 1915 was greater than in any preceding year. In 1916, 1917, and 1918, as already mentioned, there was a heavy falling off. In 1919 and 1920 a rapid recovery took place, with the result that the number recorded during the latter year was the highest on record. During 1921, however, the numbers again decreased.

4. Graphs of Annual Deaths, Commonwealth and States (page 107).—The curves shewing the progression of the annual number of deaths indicate clearly that the periods for which exceptionally large numbers of deaths occurred were:—(a) 1866-7, (b) 1875-6, (c) 1884-5, (d) 1889-1891, (e) 1893, (f) 1898, (g) 1902-3, (h) 1916, (i) 1919, and (j) 1920. It is remarkable that in each of the periods specified the phenomenon of a relatively high number of deaths was experienced in the majority of the States. Thus, as regards 1866-7, all the States except Western Australia and Tasmania were so affected; in 1875-6 all except Western Australia; in 1884-5 all were affected; in 1889 all except Western Australia and South Australia; in 1891 all except Queensland; whilst in 1893, 1898, and 1902-3 all were affected. In 1916 all States except Queensland were affected, and in 1919 each State shewed a large increase owing to the prevalence of influenza. The fact that the periods of high death rates have been practically identical in the several States furnishes an indication that the excessive mortality has been due to a considerable extent to some common cause operating throughout the Commonwealth.

It may be noted as curious that periods of heavy mortality have occurred at intervals of approximately nine years, viz.:—1866-7, 1875-6, 1884-5, 1893, and 1902-3. There are, however, two marked increases between the third and fourth dates, and one between the fourth and fifth.

Periods in which the number of deaths was exceptionally low are far less clearly defined than those in which the number was high, and the agreement amongst the States is also less complete. The principal periods of low mortality may be said to be 1861, 1869-71, 1879, 1892, 1897, 1900, 1904-5, 1909, 1914 and 1921. In 1917 there were marked declines in all the States, succeeded in 1918 by less marked increases, and in 1919 by large increases, for the reason already stated.

5. Graphs of Annual Birth, Death, and Marriage Rates and of Rate of Natural Increase—Commonwealth (page 108).—(i) *General*. These graphs represent the number of births, deaths, and marriages, and the excess of births over deaths (natural increase) per 1,000 of the population of the Commonwealth, for each of the years 1860 to 1921.

(ii) *Births*. In the case of births, the graph indicates a well marked decline in rate during the period, and represents a fall from 42.56 per 1,000 of population in 1860 to 23.53 per 1,000 in 1919. This enormous reduction has been subject to small fluctuations during the period under review, but may, on the whole, be said to have been in evidence throughout. There are, however, two periods of arrested decline noticeable, one from 1877 to 1890, and the other from 1898 to the present time. The course of the graph thus indicates a rapid fall from 42.56 in 1860 to 34.99 in 1877, succeeded by a fluctuating but, on the whole, fairly stationary period to 34.98 in 1890, then a fall even more rapid to 27.15 in 1898, and a further comparatively stationary period to 23.53 in 1919. The lowest point reached, until 1919, viz., 23.78, was attained in 1903, the year in which the Commonwealth suffered severely from the worst drought it has ever experienced. From 1903 to 1912 there was an advance in the rate, followed by a decline to 1919. The rate in 1921 was 24.95. A declining birth rate is usually due to complex causes, amongst

which the variations in the age constitution of the population, and the adoption of preventive measures, are generally considered the most potent. The highest birth rate recorded was 43.27 in 1862; and the lowest, 23.53 in 1919.

(iii) *Deaths.* The three graphs relating to deaths furnish particulars concerning the rates experienced during the period amongst males and females separately, and in the population as a whole, the latter occupying naturally a position between the other two. Throughout the period the rate for males has largely exceeded that for females, but the fluctuations in the two rates have synchronised remarkably, indicating that the conditions which have been responsible for the marked variations which have occurred from time to time have affected males and females alike. On the whole, the graphs furnish clear evidence of a satisfactory decline in the general death rate of the Commonwealth, a fall having taken place from 20.86 in 1860 to 10.59 in 1915. In 1916 there was a slight rise to 10.95, followed in 1917 by a fall to 9.71, the lowest rate yet recorded in the Commonwealth as a whole. In 1918 there was a slight rise to 9.99, followed by a rise to 12.69 in 1919. The rate for 1921 fell to 9.91. The graphical representation of the death rates brings into prominence six years in which the rates were exceptionally high when compared with those of adjacent years. These years are 1860, 1866, 1875, 1884, 1898, and 1919. The principal cause of the excessive rate of 1860 was the prevalence in that year of measles, scarlatina, and diphtheria, while the high rates of 1866, 1875, and 1898 were also largely due to epidemics of measles. Prior to 1892, when a rate of 12.91 was experienced, the lowest general death rate for the Commonwealth was that of 1871, viz., 13.24. The highest male death rate for the period was 20.97 in 1860, and the lowest 11.05 in 1921. For females the highest was 20.71 in 1860, and the lowest 8.16 in 1917. The difference between the male and female rate has, since 1869, been fairly constant, and has ranged between 1.97 and 3.68, with a mean value of about 2.7.

(iv) *Marriages.* In the case of the graph representing marriage rates, the fluctuations are less abrupt than in the case of the birth rate and death rate graphs, and the rate for 1920, 9.73, the highest ever recorded, does not differ very considerably from that of 1860, which was 8.42. The lowest marriage rate for the period was that of 1894, viz., 6.08, marking the culmination of the commercial and financial depression indicated by the declining rates from 1888 onwards. From 1894 to 1915 a satisfactory increase has been in evidence, disturbed only by the sharp decline which, in 1903, accompanied the severe drought experienced in the Commonwealth in that year. In 1916, 1917, and 1918 the rate declined to 8.14, 6.80, and 6.59 respectively, but increased to 9.62 in 1920. In 1921 the rate fell to 8.59.

(v) *Natural Increase.* This graph, which represents the excess of births over deaths per 1,000 of population, exhibits marked fluctuations arising from the combined fluctuations in birth and death rates. Thus, corresponding to the high death rates of 1860, 1866, 1875, 1898, and 1919 there are exceptionally low rates of natural increase, accentuated in the last-mentioned year by a comparatively low birth rate. A combination of low birth rate and comparatively high death rate was also responsible for the very low rate of natural increase in 1903. The highest rate of natural increase for the period was 26.58 in 1864, and the lowest 10.84 in 1919. During 1920 and 1921 the rate increased to 15.04.

6. *Graphs of Annual Birth Rates—States* (page 109).—These graphs furnish for the several States information similar to that supplied in the graph on page 108 for the Commonwealth as a whole. It will be seen that in every case the total effect has been an extensive decline in rate, subject to very marked fluctuations. In all the States the period from 1875 to 1885 was one of arrested decline, if not of actual advance, in the birth rate. With the exception of a very low rate accompanying the drought in 1903, the variations in any of the States since 1901 have not been very marked, and in most cases a slight tendency to increase is in evidence up to 1913. From 1915 to 1921 the rates in every year have been less than that experienced in 1914.

The highest birth rates during the period were as follows :—New South Wales (1864), 44.00; Victoria (1862), 44.71; Queensland (1860), 47.93; South Australia (1862), 45.44; Western Australia (1860), 38.96; and Tasmania (1884), 36.63. The following were the lowest rates for the period :—New South Wales (1919), 24.28; Victoria (1919), 21.46; Queensland (1903), 24.53; South Australia (1919), 23.61; Western Australia (1919), 21.71; Tasmania (1919), 25.90.

7. **Graphs of Annual Death Rates—States** (page 109).—These graphs furnish for the several States similar information to that given for the Commonwealth as a whole in the diagram on page 108, and indicate in each case a satisfactory decline in death rate. It may be noted that an exceptionally high death rate was experienced in all the States in 1875, and that a similar uniformity, though on a smaller scale, is observable for the year 1898, the principal cause in each case having been an epidemic of measles. The highest death rates experienced during the period were as follows:—New South Wales (1867), 19.79; Victoria (1860), 22.77; Queensland (1866), 25.96; South Australia (1875), 19.97; Western Australia (1884), 21.54; and Tasmania (1875), 19.99. The following were the lowest death rates for the period:—New South Wales (1917), 9.43; Victoria (1917), 10.31; Queensland (1921), 9.34; South Australia (1918), 9.72; Western Australia (1917), 9.05; and Tasmania (1918), 9.09.

8. **Graphs shewing Variations in Annual Death Rates from Month to Month.**—The graphs on pages 110 and 111 shew for the Commonwealth as a whole and for each of the six States the annual death rates for males, females, and persons calculated for equalised months, and the infantile death rate, calculated in the same way, also distinguishing males, females, and persons. Further particulars in regard to these graphs will be found on pages 120 and 121.

SECTION VI.

LAND TENURE AND SETTLEMENT.

§ 1. Introduction and Early History.

1. **Introduction.**—A comprehensive description, in a classified form, of the land tenure systems of the several States has been given in preceding issues of this book; see especially Year Book No. 4 (pp. 235 to 333). The details of that description have been necessarily condensed in the present issue, and for more complete information for past years, reference may therefore be made to Year Book No. 4. The historical matter dealing with the development of land legislation in the individual States may be found in Year Book No. 2 (pp. 263 to 272), and in a more condensed form in Year Books No. 3 (pp. 245 to 254), and No. 4 (pp. 235 to 244).

§ 2. Land Legislation in Individual States.

1. **New South Wales.**—(i) *Acts now in Force.* The Crown Lands Act of 1884 and the supplementary Act of 1889 (now incorporated in the Crown Lands Consolidation Act 1913), were passed chiefly for the purpose of putting an end to speculative selection without *bona fide* intention of settlement. Pastoral leases were required to be surrendered to the Crown and divided into two equal parts, one of which was returned to the lessee under a lease with a fixity of tenure for a term of years, the other half the lessee was allowed to hold under an annual occupation license, but this half was always open for selection.

Nevertheless accumulation of land into large estates continued, and settlement proceeded slowly. Entirely new principles of agrarian legislation have been embodied in Crown Lands Acts passed in the years 1895 to 1919, the Closer Settlement Acts 1904 to 1919, and the Closer Settlement Promotion Act 1910, now incorporated in Closer Settlement Amendment Act 1918, which offer *bona fide* settlers special inducements by the introduction of new forms of tenure on easy terms and conditions.

(ii) *The Western Lands Acts.* All Crown lands in the Western Division of New South Wales are now subject to the special provisions of the Western Lands Acts 1901 and 1905, and amendments in 1918, and 1919. All leases or occupation licenses could be brought within the provisions of the Western Lands Act by application before the 30th June, 1902. Otherwise the leases or licences were dealt with by the Board as if the Act had not been passed. All leases issued or brought under the provisions of the Western Lands Acts expire on the 30th June, 1943, except in cases where part of the land leased is withdrawn for the purpose of sale by auction, or to provide small holdings, in which case an extension of the term of lease of the remainder may be granted as compensation for the part withdrawn.

2. **Victoria.**—(i) *Acts now in Force.* The Land Act 1915 deals with the whole system of land occupation and alienation in this State. Closer Settlement is provided for by the Closer Settlement Acts 1915 and 1918. Special arrangements for the settlement of discharged soldiers are made by the Discharged Soldiers' Settlement Acts 1917 to 1921. Other special forms of tenure have been provided for by the Settlement on Lands Act 1893 and the Small Improved Holdings Act 1906; these, however, are now embraced in the Land Act and Closer Settlement Act respectively.

(ii) *Mallee Lands.* The lands in the Mallee territory, comprising an area of 11,354,571 acres in the north-western district of the State, can be cleared at a moderate expenditure. An extension of railway facilities and of successful systems of water supply is bringing this territory into greater prominence as a field for agricultural enterprise. There are 4,640,545 acres unalienated and available for occupation.

3. Queensland.—Acts now in Force. The Acts now in force are the Land Acts 1910 to 1920, the Closer Settlement Acts 1906 to 1917, and the Discharged Soldiers' Settlement Acts 1917 and 1920. The first-mentioned Acts substitute perpetual leasehold tenures for freeholding tenures in the case of all new selections and auction purchases, but conversion of existing holdings to the leasehold tenure is optional with the selector. The last-mentioned Acts provide for the settlement of discharged soldiers on Crown land, land acquired under the Closer Settlement Acts, or land specially acquired for soldier settlement.

4. South Australia.—Acts now in Force. The Crown Lands Act 1915 repealed and consolidated previous Acts, and also consolidated the Closer Settlement and Village Settlement Acts. The Pastoral Acts 1904 to 1919 control the pastoral occupation of lands, and the Irrigation and Reclaimed Land Acts of 1914 to 1921 provide for leases of reclaimed and irrigable lands.

5. Western Australia.—Acts now in Force. The Land Act 1898, which consolidated previous legislation as to the management of Crown lands, has in turn been amended at various times, and, with such amendments, is now in force. The Discharged Soldiers' Settlement Act 1918 provides for the settlement of discharged soldiers and sailors on the land. The principle of repurchasing Crown lands for the purpose of Closer Settlement was introduced by the Agricultural Lands Purchase Acts 1896 to 1904; these Acts were repealed and consolidated by the Agricultural Lands Purchase Act 1909.

6. Tasmania.—Acts now in Force. The law relating to land tenure and settlement is now consolidated in the Crown Lands Act 1911, the Closer Settlement Act 1913, the Returned Soldiers' Settlement Act 1916 and amendments, and the Forestry Act 1920.

7. Northern Territory.—Prior to the transfer of the Northern Territory to the Commonwealth on the 1st January, 1911, the sale and occupation of lands in the Territory were regulated by the Northern Territory Crown Lands Act 1890, the Northern Territory Land Act 1899, and the Northern Territory Tropical Products Act 1904, but from that date the further alienation and occupation of land in the Territory were suspended, pending a complete reorganisation of the system of land settlement by the Commonwealth Government. In December, 1912, an Ordinance, cited as the Crown Lands Ordinance 1912, dealing with this question, was made, by which the conditions of land tenure and settlement in the Territory are now determined. Under this Ordinance and its amendments and regulations no further alienation of Crown lands is permitted, unless such alienation is in pursuance of existing agreements.

8. Administration and Classification of Crown Lands.—In each of the States of the Commonwealth there is now a Lands Department under the direction of a responsible Cabinet Minister, who is charged generally with the administration of the Acts relating to the alienation, occupation and management of Crown lands. The administrative functions of most of the Lands Departments are to some extent decentralised by the division of the States into what are usually termed Land Districts, in each of which there is a Lands Office, under the management of a land officer, who deals with applications for selections and other matters generally appertaining to the administration of the Acts within the particular district. In some of the States there is also a local Land Board or a Commissioner for each district or group of districts. In the Northern Territory the administration of the regulations relating to the occupation and management of Crown lands is in the hands of a Classification Board, consisting of the Director of Lands and two other officers appointed by the Administrator.

In most of the States, Crown lands are classified according to their situation, the suitability of the soil for particular purposes, and the prevailing climatic and other conditions. The modes of tenure under the Acts, as well as the amount of purchase money or rent and the conditions as to improvements and residence, may vary in each State according to the classification of the land. The administration of certain special Acts relating to Crown lands has in some cases been placed in the hands of a Board under the general supervision of the Minister: for such purpose, for instance, are constituted the Western Lands Board in New South Wales, the Lands Purchase and Management Board in Victoria, and the Closer Settlement Board in Tasmania.

In each of the States and in the Northern Territory there is also a Mines Department, which is empowered under the several Acts relating to mining to grant leases and licenses of Crown lands for mining and auxiliary purposes. Such leases and licenses are more particularly referred to in a later part of this section. (See § 9.)

Full information respecting lands available for settlement or on any matter connected with the selection of holdings may be obtained from the Commonwealth representative in London, from the Agents-General of the respective States in London, or from the Lands Departments of the various States in the Commonwealth.

§ 3. Tenures under which Crown Lands may be Alienated or Occupied.

1. *Introduction.*—Crown lands may now ordinarily be alienated either by free grant (in trust for certain specified purposes), by direct sale and purchase (which may be either by agreement or at auction), or by conditional sale and purchase. Crown lands may be occupied in the several States under a variety of forms of leases and licenses, issued both by the Lands and the Mines Departments.

2. *Classification of Tenures.*—The tabular statement given on pages 153 and 154 shews the several tenures under which Crown lands may be acquired or occupied in each State of the Commonwealth. The forms of tenure are dealt with individually in succeeding parts of this section.

(i) *Free Grants, Reservations, and Dedications.* The modes of alienation given in this category include all free grants either of the fee simple or of leases of Crown lands. "Free" homesteads in Queensland and Western Australia are not included in this class, these tenures being free in the sense that no purchase money is payable, but not free from residential and improvement conditions. Reservation and dedication, which are ordinarily conditions precedent to the issue of free grants, are also dealt with therein.

(ii) *Sales by Auction and Special Sales.* This class of tenure includes all methods by which the freehold of Crown lands may be obtained (exclusive of sales under the Closer Settlement and kindred Acts) for cash or by deferred payments, and in which the only condition for the issue of the grant is the payment of the purchase money.

(iii) *Conditional Purchases.* In this class are included all tenures (except tenures under Closer Settlement and kindred Acts) in which the issue of the grant is governed by the fulfilment of certain conditions (as to residence or improvements) other than, or in addition to, that of the payment of purchase money.

(iv) *Leases and Licenses.* This class includes all forms of occupation of Crown lands (other than under Closer Settlement and kindred Acts) for a term of years under leases and licenses issued by the Lands Departments. As the terms indicate, the freehold cannot be obtained under these forms of tenure.

CLASSIFICATION OF TENURES UNDER WHICH CROWN LANDS MAY BE ALIENATED OR OCCUPIED.

New South Wales.

Victoria.

Queensland.

FREE GRANTS, RESERVATIONS, AND DEDICATIONS.

Free grants in trust
Reservations and dedications
under Crown Lands Consolidation Act 1913 and Mining Act 1906

Free grants in trust and reservations under Land Act 1915

Free grants in trust
Reservations under Land Act 1910
and under State Forests and National Parks Act 1906

SALES BY AUCTION AND SPECIAL SALES.

Auction sales for cash or on credit
After-auction sales
Special sales
Improvement purchases
Purchases of suburban holdings, residential leases, week-end leases
Returned Soldiers' special holdings

Auction sales for cash or on credit
Special sales*

*Auction sales for cash or on credit
*After-auction sales
*Special sales
*Unconditional selections

CONDITIONAL PURCHASES.

Residential or non-residential conditional purchases
Conversion of conditional purchase leases, homestead selections, homestead farms, settlement leases, Crown leases, special leases, church and school lands leases
Homestead selections

Agricultural allotments, residential or non-residential
Grazing allotments, residential or non-residential
Selection from grazing area, perpetual or auriferous leases
Selection from pastoral leases
Mallee agricultural licenses
Murray settlement leases
Selection purchase leases

*Agricultural farms
*Agricultural homesteads
*Prickly pear selections
*Free homesteads

LEASES AND LICENSES.

Conditional leases
Conditional purchase leases
Settlement leases
Improvement leases
Annual leases
Residential leases
Special leases
Snow leases
Pastoral leases
Scrub leases
Inferior lands leases
Occupation licenses
Western lands leases
Homestead farms
Suburban holdings
Crown leases
Leases in Irrigation Areas
Week-end leases
Returned Soldiers' special holdings

Grazing area leases
Perpetual leases
Mallee leases
Licenses of auriferous lands
Leases of swamp or reclaimed lands
Grazing licenses
Leases and licenses for other than pastoral or agricultural purposes
State forest and timber reserve licenses

Grazing homesteads
Grazing farms
Occupation licenses
Special leases
Perpetual lease selections
Perpetual lease prickly pear selections
Pastoral leases
Preferential pastoral leases
Auction perpetual leases (town, suburban, or country)
After-auction ditto
Non-competitive leases

CLOSER SETTLEMENT SALES, LEASES AND LICENSES.

Sales by auction
Settlement purchase
Annual leases
Labour settlements

Special sales
Conditional purchase leases

*Sales by auction
*Agricultural farms
*Unconditional selections
Auction perpetual leases
Perpetual lease selections

MINES DEPARTMENTS' LEASES AND LICENSES.

Miners' rights
Business licenses
Authorities to prospect
Leases

Mining leases
Special licenses
Miners' rights
Business and residence licenses

Miners' rights
Mining leases and licenses
Miners' homestead leases

* Since 1st January, 1917, no new sales or selections under these tenures have been made, nor may any further areas be offered under these tenures.

CLASSIFICATION OF TENURES UNDER WHICH CROWN LANDS MAY BE ALIENATED OR OCCUPIED:

South Australia.

Western Australia.

Tasmania.

FREE GRANTS, RESERVATIONS, AND DEDICATIONS.

Free grants in trust
Reservations and dedications
under Crown Lands Act 1915
Artesian leases

Free grants in trust and free
leases
Reservations under Lands Acts
1898 and 1906

Free leases
Reservations under Crown Lands
Act 1911

SALES BY AUCTION AND SPECIAL SALES.

Auction sales for cash
After-auction sales
Sales for special purposes

Auction sales for cash
(The right to purchase the
freehold or to lease town and
suburban lots is sold by
auction)

Auction sales for cash or on
credit
After-auction sales
Special sales of residence or
business allotments

CONDITIONAL PURCHASES.

Agreements to purchase
Special agreements under Pin-
naroo Railway Act

Conditional purchase, residential
or non-residential
Conditional purchase by direct
payment
Conditional purchase of small
blocks
Homestead farms
Conditional auction sales
Workmen's blocks

Selection of rural lands
Homestead areas
Selection in mining areas
Conditional auction sales

LEASES AND LICENSES.

Perpetual leases
Miscellaneous leases
Miscellaneous grazing and cul-
tivation leases
Irrigation and reclaimed land
leases
Special licenses
Pastoral leases
Leases with right of purchase

Pastoral leases
Special leases
Quarrying licenses

Grazing leases
Miscellaneous leases
Timber licenses and leases
Residence licenses
Occupation licenses
Temporary licenses
Forest permits

CLOSED SETTLEMENT SALES, LEASES, AND LICENSES.

Sales by auction
Agreements to purchase
Miscellaneous leases
Irrigation and reclaimed area
leases
Village settlements
Homestead blocks

Sales by auction
Conditional purchases

Special sales
Leases with right of purchase

SOLDIER SETTLEMENT SALES
LEASES, GRANTS, ETC.
Special sales
Leases with right of purchase
Free grants

MINES DEPARTMENTS' LEASES AND LICENSES.

Miners' rights
Mining leases
Miscellaneous leases
Business licenses
Occupation licenses
Mineral claims
Search licenses

Miners' rights
Mining leases
Miners' homestead leases

Prospectors' licenses
Miners' rights
Mining leases
Miscellaneous licenses

NOTE.—*Northern Territory*—By the Crown Lands Ordinance of 1912 and its amendments, the only form of tenure under which land may be held in the Northern Territory, exclusive of land held under pre-existing rights, is that of leasehold. See § 7 of this section.

(v) *Closer Settlement Sales, Leases, and Licenses.* In this division are included all forms of tenure provided for under the various Closer Settlement Acts, and under kindred Acts, such as the Village Settlements and Small Holdings Acts.

(vi) *Mines Departments' Leases and Licenses.* The tenures specified include all methods in which Crown lands may be occupied for mining and auxiliary purposes under leases and licenses issued by the Mines Departments in the several States.

3. Limitation of Tenures in New South Wales.—In October, 1910, it was officially stated that it was the policy of the Government to discontinue the granting of the freehold of Crown lands. Under the Crown Lands Act 1912 this policy was partially given effect to by the discontinuance of the disposal of Crown lands by conditional purchase or as homestead selections, and by the institution of several new forms of tenure, viz., homestead farms, suburban holdings, irrigation farms, and Crown leases.

The first three are leases in perpetuity, while the term of a Crown lease is 45 years.

These four tenures did not then carry any rights of conversion, but by subsequent enactments the first and last mentioned may now be converted into other tenures, and ultimately into freehold, and the holder of a suburban holding may under certain conditions be permitted to purchase same.

4. Tenure of Lands by Aliens.—In the States of New South Wales, Queensland, South Australia, and Western Australia, restrictions are imposed upon the tenure of lands by aliens (*i.e.*, persons other than natural-born or naturalized British subjects). In Victoria and Tasmania there are no such restrictions.

(i) *New South Wales.* Under the Crown Lands Consolidation Act 1913, an alien is not qualified to apply for an original homestead selection, original conditional purchase lease, settlement lease, original homestead lease, or original conditional purchase, unless he has resided in New South Wales for one year, and at the time of making application lodges a declaration of his intention to become naturalized within five years. If he fails to become naturalized within that period, the land is forfeited. This residential limit of twelve months does not, however, apply to applicants for homestead farms, Crown leases, suburban holdings, and leases within irrigation areas, but any alien who becomes the holder of any of these tenures must become naturalized within three years after his becoming such holder. Failure to comply with this regulation involves forfeiture of such holding, together with all improvements thereon.

(ii) *Victoria.* Under the Supreme Court Act 1915 (section 3), every alien friend resident in Victoria may acquire, either by grant from the Crown or otherwise, both real and personal property.

(iii) *Queensland.* Under the Land Act 1910 (sections 59b and 62) an alien cannot apply for any land in Queensland unless he obtains a certificate that he is able to read and write from dictation words in such language as the Minister for Lands may direct. If he acquire a selection he must within five years of such acquisition become a naturalized subject. Under the Mining Act 1898, an Asiatic, African or Polynesian alien is debarred from all privileges under that Act except that of holding an alluvial gold claim.

(iv) *South Australia.* In South Australia, Asiatics are disqualified from holding perpetual leases of lands in irrigation areas under section 19 of the Irrigation and Reclaimed Lands Act 1914.

(v) *Western Australia.* Every application to acquire Crown lands, whether by a British subject or an alien, is subject to the approval of the Minister for Lands, with an appeal to the Governor in Council. No Asiatic or African alien may hold any interest, by virtue of a miner's right, without the authority of the Minister for Mines.

(vi) *Tasmania.* By the Aliens Act 1913 all restrictions on the holding of real estate by aliens are removed.

(vii) *Northern Territory.* Leases are not granted to aliens, but they may hold occupation licenses for twelve months, subject to renewal, provided the land is not required for other purposes. Under the Mining Act 1903 Asiatic aliens are disqualified from holding gold or mineral leases. Naturalized British subjects may hold leases.

§ 4. Free Grants, Reservations, and Dedications.

1. **Introduction.**—Although free grants of Crown lands were virtually abolished as far back as 1831, the Land Acts of all the States now contain provisions under which the free alienation or occupation of Crown lands for certain specified purposes—comprising generally charitable, educational, and public purposes—is allowed. In all the States, also, Crown lands may be excepted from sale and reserved to the Crown or dedicated for various public and special purposes. Generally, reservation and dedication are conditions precedent to the issue of a free grant. In addition to reservations of a permanent nature, temporary reservations are also made, but these are, as a rule, subject to considerable fluctuations in area by reason of withdrawals, renotifications, and fresh reservations.

The following table shews the area for which free grants were issued and the areas permanently reserved or dedicated in each State during 1901, and from 1916 to 1920 inclusive :—

PARTICULARS OF FREE GRANTS, RESERVATIONS, AND DEDICATIONS, 1901 AND 1916 TO 1920.

Year.	N.S.W.	Victoria.(a)	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
FREE GRANTS.							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901 ..	282	7	425	5	156	10(b)	885
1916 ..	1,679	26	18	6,556	1	17	8,297
1917 ..	2,066	51	18	250	7	14(c)	2,406
1918 ..	926	25	33	309	Nil	5	1,298
1919 ..	1,118	1,349	Nil	344	Nil	2	2,813
1920 ..	641	Nil	6	859	Nil	Nil	1,506

RESERVATIONS AND DEDICATIONS.

1901 ..	1,595	19,278	811,200	(d)	189,856	4,231	1,026,160e
1916 ..	2,426	6,482(f)	8,251	21,390	157,601	1,602	197,752
1917 ..	779	7,637	906,008	10,312	154,110	6,717	1,085,563
1918 ..	501	1,581	-142,081(g)	12,780	274,391	10,452(c)	299,706h
1919 ..	381	960	-68,647(g)	220,463	273,392	22,053	517,249h
1920 ..	693	3,488	-262,170(g)	12,470	245,545	160,549	422,745h

(a) Including both permanent and temporary reservations and dedications.

(b) Free leases.

(c) These are free leases for 99 years.

(d) Not available.

(e) Exclusive of South Australia.

(f) Including 222 acres reserved for recreation grounds.

(g) The minus sign (-) indicates area of reserves cancelled in excess of areas set apart as reserves.

(h) Omitting Queensland.

2. **New South Wales.**—Crown lands may be reserved or dedicated for certain charitable, educational, and public purposes specified. No promises of dedication for religious purposes were made after the 11th May, 1880, on which date a resolution against any further such grants was passed by the Legislative Assembly. Volunteer Land Office Certificates ceased to be operative after the 31st January, 1912. All cases have now been dealt with.

(i) *Reservations.* In addition to the reservations referred to above, Crown lands may also be temporarily reserved as sites for cities, towns, or villages, and may be reserved for mining purposes. Crown lands within one mile of any made or projected railway may be temporarily reserved from sale, and any Crown lands may be reserved from sale for the preservation and growth of timber. Further, Crown lands may be reserved by notification in the *Gazette* from being sold or let upon lease or license, in such particular manner as may be specified, or may be reserved from sale or lease generally.

(ii) *Areas Granted and Reserved, 1920-21.* During the financial year 1920-21, the total area for which free grants were prepared was 1,014 acres, including grants of 1,013 acres of land resumed under the 12th clause of the Public Roads Act 1902. During the same period 502 acres were dedicated and permanently reserved, the number of separate dedications being 79.

On the 30th June, 1921, the total area temporarily reserved was 20,505,499 acres, of which 5,696,096 acres were for travelling stock, 3,559,113 acres for forest reserves, 821,726 acres for water, 1,349,695 acres for mining, and the remainder for temporary commons, railways, recreation and parks, and miscellaneous purposes.

3. *Victoria.*—Under section 10 of the Land Act 1915, the Governor is authorised to reserve Crown lands, either temporarily or permanently, from sale, lease, or license, for any public purpose whatever.

During the year 1920 no free grants were issued, but reservations of both a permanent and temporary nature, comprising a nett area of 3,488 acres, were made; of this area that part reserved for recreation grounds was reduced by 136 acres nett.

4. *Queensland.*—Under the Land Act 1910, the Governor in Council may grant in trust, or reserve from sale, or lease, temporarily or permanently, any Crown lands required for public purposes.

(i) *Reservations.* Under section 2 of the State Forests and National Parks Act 1906, the Governor in Council may permanently reserve any Crown lands and declare them to be a State Forest or a National Park.

(ii) *Areas Granted and Reserved, 1920.* During the year 1920 twenty-six free grants were issued, the total area being $6\frac{1}{2}$ acres. During the same period the area of reserves cancelled was 262,170 acres in excess of areas set apart as reserves. The total area reserved up to the end of the year 1920 was 13,981,889 acres, made up as follows:—timber reserves, 2,673,048 acres; State forests and national parks, 1,343,966 acres; for use of aborigines, 4,050,425 acres; and general, 5,914,450 acres.

5. *South Australia.*—Under section 7 (d) of the Crown Lands Act 1915, the Governor is empowered to dedicate by proclamation any Crown lands for various charitable, educational and public purposes, and may, at any time after dedication, grant the fee simple of such lands to secure the use thereof for the purposes for which they were dedicated.

(i) *Reservations.* Under section 7 (f) of the same Act, the Governor may by proclamation reserve any Crown lands (i) for the use of aborigines, (ii) for the purposes of military defence, (iii and iv) for forest or travelling stock reserves, (v) for public recreation grounds, (vi) for railways or tramways, (vii) for park lands, and (viii) for any other purposes he may think fit.

(ii) *Artesian Leases.* Under special circumstances free leases of pastoral lands may be granted to discoverers of artesian wells.

(iii) *Areas Granted and Reserved, 1920.* During the year 1920 there were 22 free grants issued for a total area of 859 acres. During the same year reserves comprising 12,470 acres were proclaimed.

6. *Western Australia.*—Under section 39 of the Land Act 1898, as amended by section 27 of the Act of 1906, the Governor may reserve any Crown lands which may be required for religious, charitable, or public purposes. These reservations may be either temporary or permanent.

During the year 1920, no free grants were issued, while the area reserved was 245,545 acres.

7. *Tasmania.*—Under section 11 of the Crown Lands Act 1911, the Governor may reserve any Crown lands for the purposes therein specified. The lands are ordinarily leased for a period of ninety-nine years at a peppercorn rental.

During the year ending 31st December, 1920, there were no free leases issued, but 160,549 acres were reserved, 34,490 acres for national park purposes, 1 acre for hall site purposes, 24 acres for recreation purposes, 100 acres as a sanctuary for wild fowl, and 126,034 acres for other purposes. The total area reserved from sale and selection to the end of the year 1920 was 4,982,000 acres.

§ 5. Sales by Auction and Special Sales.

1. *Introduction.*—In all the States, except Queensland since 1916 (see paragraph 4 hereunder), sales by auction of Crown lands are held from time to time. Notifications of such sales are given in the *Government Gazettes* together with particulars as to the upset price and conditions of sale. Excepting in the case of South Australia, where land is sold at auction for cash only, the purchase may be either for cash or on credit by deferred payments. In most of the States land may also be purchased by private contract at the upset price, when it has been offered at auction and not sold. In the case of auction sales on credit in the States of Western Australia and Tasmania, certain improvement conditions are imposed, and such sales are therefore classed for the purposes of this article among *Conditional Purchases*. (See § 6.) In most of the States comparatively small areas of Crown lands may be sold without competition under special circumstances. Sales by auction and special sales under Closer Settlement Acts are referred to in a later part of this section. (See § 8.)

2. *New South Wales.*—Under the Crown Lands Act, lands not exceeding in the aggregate 200,000 acres for the whole State may be sold by auction during any one year. The sales are notified in the *Gazette* not less than one month before the day of sale. The upset prices may not be less than £8 an acre for town lands; £2 10s. for suburban lands; and other lands fifteen shillings. Town lands may not be sold in areas exceeding half an acre; suburban land in areas exceeding twenty acres; and country lands in areas exceeding 640 acres. A deposit of 10 per cent. on the purchase money must be paid at the sale, and the balance in ordinary circumstances within three months. The Minister may submit land to sale on deferred payments, in which case the balance is spread over a fixed period (not exceeding 10 years) and is payable in annual instalments with 5 per cent. interest.

A fuller description of the conditions under which land may be purchased at auction may be found in the previous issues of the Year Book. (See Year Book No. 5, p. 273.)

Alienation by Auction and Special Sales. During the year ended 30th June, 1921, the area of Crown lands sold by auction and special sales for which grants were prepared amounted to 4,693 acres, of which 3,200 acres were sold by auction in 564 lots; 615 acres were sold by after-auction sales in 392 lots; 23 acres were sold as improvement purchases in 40 lots; and 855 acres were sold as special purchases in 120 lots. The following table gives particulars of Crown lands alienated by auction and special sales during 1901 and for each year from 1916 to 1921 :—

NEW SOUTH WALES.—AUCTION AND SPECIAL SALES, 1901 AND 1916 TO 1921.

Year.	Auction and After-auction Sales.	Improvement Purchases.	Special Sales.	Total.	
				Area.	Price.
	Acres.	Acres.	Acres.	Acres.	£
1901(a)	49,074	43	445	49,562	116,562
1916 ..	492	66	2,707	3,265	35,614
1917 ..	900	39	1,120	2,059	39,967
1918 ..	10,115	55	1,791	11,961	103,796
1919 ..	11,228	32	2,215	13,475	81,532
1920 ..	6,699	28	1,640	8,367	43,764
1921 ..	656	22	2,036	2,714	22,550

(a) Year ended 31st December. Subsequent years to 30th June.

Particulars of total areas alienated are given hereinafter. (See § 11.)

3. **Victoria.**—Lands specially classed for sale by auction, and any land in any city, town, or borough, may be sold by auction in fee simple, not exceeding 100,000 acres in any one year, at an upset price of £1 an acre, or at any higher price determined. The purchaser must pay the survey charge at the time of the sale, together with a deposit of $12\frac{1}{2}$ per cent. of the whole price; the residue is payable in equal half-yearly instalments not exceeding forty in number, according to the amount, with interest at the rate of 5 per cent. per annum.

(i) *Special Sales without Competition.* Detached strips of land not exceeding twenty acres may be sold at a valuation to the owner of the adjoining freehold in cases somewhat similar to those specified above in respect to Crown lands in New South Wales.

(ii) *Areas Sold at Auction and by Special Sales.* The following table gives particulars of auction sales and special sales for the year 1901 and from 1916 to 1920 :—

VICTORIA.—AUCTION AND SPECIAL SALES, 1901 AND 1916 TO 1920.

Particulars.		1901.	1916.	1917.	1918.	1919.	1920
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Country lands	.. ..	4,079	625	615	450	336	1,798
Town and suburban lands	.. ..	2,127	622	617	739	368	832
Special sales	.. ..	846	814	546	1,657	318	282
Total	.. ..	7,052	2,061	1,778	2,846	1,022	2,912

Particulars of total areas alienated are given hereinafter. (See § 11.)

4. **Queensland.**—Up to 31st December, 1916, the Minister might, with the approval of the Governor-in-Council, cause any Crown lands to be offered for sale by auction. Town or suburban lands might be under either freeholding or perpetual lease tenure. The notification specified the amount of deposit, and the term for payment of the balance of the money, which term might not exceed ten years. The upset price might not be less than £8 per acre for town lands, £2 per acre for suburban lands, and 10s. per acre for country lands. Since the close of the year 1916, however, the perpetual lease tenure only is available.

Land may now be offered at auction as perpetual town, suburban, or country leases. The annual rental for the first period of fifteen years is at the rate of 3 per cent. of the notified capital value, or of such higher capital value as may be bid at auction. At the end of each period of fifteen years the rental may be reappraised by the Land Court for the next period at the rate of 5 per cent. of the fair unimproved capital value of land of similar quality in the same neighbourhood or 5 per cent. of the capital value bid at auction, whichever is greater. No conditions attach to perpetual country leases, but on perpetual town or suburban leases improvements must be made during the first two years of the term to the value of £25 or more as the Minister may direct in the notification offering the land at auction. No person may hold more than six perpetual town leases and six perpetual suburban leases in any one town or adjacent thereto. The maximum area for town allotments is half an acre each, for suburban five acres, and for country leases 640 acres.

(i) *After-auction Sales.* The notification of lands for sale by auction might declare that any lands therein mentioned, which had been offered at auction but not sold or withdrawn, should be open to purchase at the upset price by the first applicant. The price might be paid in the same instalments and at the same periods as if the land had been bought at the auction. This now applies, with the necessary modifications, to perpetual leases.

(ii) *Special Sales without Competition.* Land might be sold without competition to the holder or holders of adjoining lands at a price to be determined by the Land Court, under circumstances similar to those specified above in the case of New South Wales. When the holder of any land proved that, owing to danger from flood or other reasons, it was unsafe to reside on his holding, he might be granted, on payment of a price

determined by the Land Court, an area not exceeding ten acres out of the nearest convenient and available Crown lands. Perpetual leasehold is now an alternative tenure, at the Minister's option.

(iii) *Areas Sold at Auction, after Auction, and by Special Sales.* The following table shews the areas sold at or after auction, and by special sales, during the years 1901, 1915 and 1916 :—

QUEENSLAND—AUCTION AND SPECIAL SALES, 1901, 1915 AND 1916.

(FREEHOLDING TENURES.)

Particulars.					1901.	1915.	1916.(a)
					Acres.	Acres.	Acres.
Town	..	..	..	..	334	149	..
Suburban	..	..	..	..	793	541	..
Country—							
Ordinary sales	..	..	..	..	52,132	2,623	..
Special sales	..	..	..	..	55	79	108
Total	..	..	..	..	53,314	3,392	108

(a) Freeholding tenures not granted since 31st December, 1916.

Particulars of total areas alienated are given hereinafter. (See § 11.)

During 1920 there were in Queensland auction sales, under perpetual lease, of 142 acres for town areas, 262 acres for suburban areas, and 889 acres for country areas—a total of 1,293 acres. Particulars for five years, together with total area sold, are shewn in the following table :—

QUEENSLAND—SALES OF PERPETUAL LEASES AT AUCTION, 1916 TO 1920.

Year.	Number of Lots Sold.				Area Sold.			
	Town.	Suburban.	Country.	Total.	Town.	Suburban.	Country.	Total.
					Acres.	Acres.	Acres.	Acres.
1916	690	292	..	982	296	1,275	..	1,571
1917	279	62	125	466	107	168	2,599	2,874
1918	441	168	57	666	163	428	1,218	1,809
1919	660	58	40	758	231	199	607	1,037
1920	464	89	63	616	142	262	889	1,293
Total	2,918	756	285	3,959	1,097	3,081	5,313	9,491

(iv) *Unconditional Selections.* This form of tenure is similar to that of a sale by auction with deferred payment. The minimum price for the land is 13s. 4d. an acre, payable in twenty annual instalments, and the maximum area granted to the applicant is 1,280 acres. A deed of grant may be obtained upon payment of the purchase money. Selection under this tenure, in common with other freeholding tenures, has now ceased.

The following table shews the number and area of unconditional selections for which applications were accepted during the years 1901, 1915 and 1916 :—

QUEENSLAND—UNCONDITIONAL SELECTIONS, 1901, 1915 AND 1916.

Particulars.					1901.	1915.	1916.(a)
Number	..	..	..	..	151	35	8
Area	..	..	..	acres	24,322	5,639	3,035
Rent	..	..	..	£	1,180	213	103

(a) Freeholding tenures not granted since 31st December, 1916.

5. *South Australia.*—The following lands may be sold by auction for cash :—

(a) *Special blocks.* Any single section of Crown lands which may be surrounded by lands sold or contracted to be sold, and any section (not exceeding 100 acres in area) which may

be required for the establishment of any industry. (b) Crown lands which have been offered for perpetual lease or agreement to purchase, and not taken up for two years. (c) Town lands. (d) Suburban lands. The upset price is determined by the Commissioner, and 20 per cent. of the purchase money must be deposited at the time of sale, and the residue paid within such a time as the Commissioner may allow.

(i) *After-auction Sales.* All Crown lands except town or suburban lands offered at auction and not sold remain open for leasing or sale under agreement, or may be sold by private contract for cash at the upset price.

(ii) *Sales for Special Purposes.* The Governor may, on the application of the purchaser or lessee under any of the Crown Lands Acts, grant two acres of the land comprised in such agreement or lease to trustees, to be used for any public or charitable purposes, or he may grant not over one acre of land, comprised in such agreement or lease, as a site for a shop, mill, or post office. The purchase money for such land must be paid at the time of application.

(iii) *Areas Sold for Cash.* The following table shews the areas sold for cash during the year 1901 and from 1916 to 1920. The total areas sold under all types of sale are shewn in a later part of this section. (See § 11.)

SOUTH AUSTRALIA.—AUCTION AND SPECIAL SALES, 1901 AND 1916 TO 1920.

Year.	1901.	1916.	1917.	1918.	1919.	1920.
Area in acres	11,314	30,799	36,964	29,921	38,507	51,159

6. Western Australia.—Surveyed town lots notified in the *Gazette* as open for sale, either to purchase outright, or to lease, are sold by public auction at prescribed upset prices. In the case of suburban lands, the purchaser must carry out certain improvements, which are more particularly referred to later. (See § 6, *Conditional Purchases.*)

Areas Sold by Auction. The following table shews the areas of town and suburban lands sold at auction during the year 1901 and from 1916 to 1921 :—

WESTERN AUSTRALIA—AUCTION SALES, 1901 AND 1916 TO 1921.

Year.. ..	1901.	1916.(a)	1917.(a)	1918.(a)	1919.(a)	1920 (a)	1921.(a)
Area sold .. acres	856	419	543	964	277	496	2,149
Number of Allotments	1,366	102	144	278	137	140	806

(a) For the year ended 30th June.

Particulars as to total areas alienated are given in a later part of this section. (See § 11.)

7. Tasmania.—Any town lands may be sold at auction or by private contract, either for cash or on credit, provided that no such lands may be sold on credit if the price is less than £15. Rural lands may also be sold at auction or by private contract, but lots of first-class land may not be sold on credit if less than fifteen acres in area. In the case of sales on credit both of town and rural lands, improvement conditions are imposed, and such sales are therefore classified for the purposes of this article as *Conditional Purchases.* (See § 6.)

(i) *After-auction Sales.* All rural lands and town lands, not within five miles of any city, which have been offered at auction and not sold, may be purchased by private contract at the upset price, and subject to the conditions on which they were offered at auction.

(ii) *Sale of Land in Mining Towns.* The holder of a residence or business license, who is in occupation and is the owner of buildings and improvements upon the area licensed of a value equal to the upset price of such area, is entitled to purchase not more than half an acre in area. The areas may be sold on credit.

(iii) *Areas Sold for Cash.* The following table shews the areas sold for cash during the year 1901 and from 1916 to 1920 :—

TASMANIA.—AUCTION AND SPECIAL SALES, 1901 AND 1916 TO 1920.

Year	1901.	1916.	1917.	1918.	1919.	1920.
Area in acres	1,915	170	133	310	120	105

Particulars of total areas alienated are given in a later part of this section (See § 11.)

§ 6. Conditional Purchases.

1. *Introduction.*—In all the States of the Commonwealth, except Queensland, the freehold of the land may be acquired under what are known as systems of conditional purchase by deferred payments of half-yearly or yearly instalments. Certain conditions, generally as to residence and improvements, have to be complied with before the freehold is granted, but these conditions are usually of a light nature and are inserted chiefly with the object of guaranteeing that the occupier will become of benefit to the community by making a reasonable effort to render his holding wealth producing. Though there is a considerable similarity between some of the forms of tenure in the several States, the terms and conditions vary greatly in detail. As a rule a lease or license for a certain period is first issued to the selector, and upon fulfilment of the prescribed conditions and payment of the full amount of purchase-money the freehold is conveyed to him. In Western Australia “free” homesteads may be acquired. Although under these tenures no purchase-money is payable, the grant is conditional on the performance of residential and improvement conditions; these tenures are therefore included here with conditional purchases rather than with free grants.

2. *New South Wales.*—The following are the methods by which land may be alienated by conditional purchase:—(i) Residential conditional purchase; (ii) non-residential conditional purchase; (iii) conversion of certain holdings into conditional purchase; and (iv) homestead selections.

During the year ended the 30th June, 1921, deeds of grant were prepared on the completion of conditional purchases for 664,522 acres, the total number of conditional purchases in existence at the end of the financial year being 78,971 for a total area of 18,672,521 acres. The following table gives particulars of conditional purchases in 1901 and from 1916 to 1921 :—

NEW SOUTH WALES.—CONDITIONAL PURCHASES, 1901 AND 1916 TO 1921.

Year.	Applications Made.		Applications Confirmed.		Areas for which Deeds have been Issued.	
	Number.	Area.	Number.	Area.	During the Year (b.)	To end of Year.
		Acres.		Acres.	Acres.	Acres.
1901 ..	2,277	549,898	1,555	360,910	500,554	4,212,189
1916 (a) ..	216	22,495	183	23,552	307,016	16,571,958
1917 (a) ..	168	25,761	108	13,025	357,828	16,929,786
1918 (a) ..	271	32,085	121	16,211	388,338	17,318,124
1919 (a) ..	511	75,370	201	24,911	559,779	17,877,903
1920 (a) ..	773	126,179	257	35,012	686,385	18,564,288
1921 (a) ..	533	90,573	480	78,461	664,522	19,228,810

(a) Year ended 30th June. (b) Exclusive of exchanges under the Crown Lands Act 1895.

Further particulars as to the total areas alienated and in process of alienation are given hereinafter. (See § 11.)

During the year ended 30th June, 1921, there were 5 original and 16 additional homestead selections applied for, comprising an area of 14,069 acres. During the same period the total number of applications confirmed was 21, comprising 7,819 acres; and 2,864 homestead selections and grants, comprising an area of 895,330 acres, were in existence on the 30th June, 1921. This tenure is now practically superseded by the Homestead Farm tenure. Further particulars for previous years are given in a later part of this section. (See § 11.)

3. **Victoria.**—The freehold of agricultural and grazing lands may be acquired by conditional purchase under the following tenures:—(i) Agricultural, grazing and selection purchase allotments; (ii) agricultural and grazing allotments by selection from grazing area or perpetual leases; (iii) Mallee selection purchase leases; (iv) Murray settlement leases; and (v) swamp or reclaimed lands purchase leases.

With reference to Murray settlement leases, on the Merbein, Mildura, and Nyah Irrigation Settlements the development has been maintained and extended in a very satisfactory manner. These are proving the most successful irrigation settlements in the State, a number of returned soldiers being included amongst the settlers.

The subjoined table gives particulars shewing the areas selected conditionally during the year 1901 and from 1916 to 1920. A large proportion of the areas shewn has reverted to the Crown in consequence of non-fulfilment of conditions.

VICTORIA.—AREAS PURCHASED CONDITIONALLY, 1901 AND 1916 TO 1920.

(EXCLUSIVE OF SELECTION IN THE MALLEE COUNTRY.)

Particulars.	1901.	1916.	1917.	1918.	1919.	1920.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
With residence	466,155	117,180	69,210	61,884	76,003	79,461
Without residence	50,257	22,485	19,462	12,093	6,635	23,050
Total	516,412	139,665	88,672	73,977	82,638	102,511
No. of selectors	2,979	902	646	526	698	710

Particulars as to total areas alienated and in process of alienation are given in a later part of this section. (See § 11.)

4. **Queensland.**—The several types of selection under which the freehold might, prior to 1917, have been acquired by conditional purchase are as follows:—(i) Agricultural farms; (ii) agricultural homesteads; (iii) prickly pear selections; and (iv) free homesteads.

Since the close of the year 1916, no selections can be acquired on a freeholding basis, but existing selections are not affected, though they may be converted to perpetual leases if the selectors so desire.

Number and Area of Conditional Purchases prior to 1917. The following table shows the number and area of conditional purchases for which applications were accepted in 1901, 1915 and 1916 :—

QUEENSLAND.—CONDITIONAL PURCHASES (APPLICATIONS ACCEPTED),
1901, 1915 AND 1916.

Year.	Agricultural Farms.		Agricultural Homesteads.		Prickly Pear Selections.		Total.	
	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.
		Acres.		Acres.		Acres.		Acres.
1901 ..	661	160,804	669	155,512	19	48,450	1,349	364,766
1915 ..	978	300,302	12	1,913	451	481,258	1,441	783,473
1916 ..	399	120,207	5	1,337	203	180,921	607	302,465

During the years 1917 to 1921, no land was opened for selection, nor was any selected, under tenures involving freehold.

Particulars as to total areas alienated and in process of alienation may be found hereinafter. (See § 11.)

5. *South Australia.*—The types of conditional purchases under which land may be alienated in this State are as follows :—(i) Agreement to purchase, and (ii) Agreement under the Pinnaroo Railway Act 1903.

(i) *Agreement to Purchase.* Surveyed Crown lands are available for agreement to purchase, as well as for perpetual lease under the Crown Lands Acts of 1915, the purchase money being fixed by the Land Board, and payable in sixty half-yearly payments, including interest at not less than 2 per cent. per annum. The condition as to payment of instalments for land offered under the provisions of Act of 1915 in newly surveyed mallee lands is that no payment is made for the first four years, from the fifth to end of the tenth year interest only at the rate of 2 per cent. per annum on value of land is payable, the first instalment of purchase money, including interest at the rate of 4 per cent. per annum, being payable at the commencement of the eleventh year. All payments are made in advance, the term of agreement being thereby extended to forty years. If the conditions relating to fencing, vermin destruction, and, in some cases, to residence are fulfilled, the purchase may be completed after a term of six years from commencement of the agreement on payment of all principal and interest due. All minerals are reserved to the Crown, and the Crown may resume any part of the land for the purposes of roads, water conservation, mining, &c., compensation being payable to the purchaser for loss occasioned by resumption.

(ii) *Pinnaroo Railway Lands.* Under the Pinnaroo Railway Act 1903 provision was made for opening up about 1,500,000 acres of good agricultural country in the vicinity of a line from Pinnaroo, adjoining the Victorian border, to Tailem Bend, a distance of eighty-seven miles. These lands are now offered on agreement with covenant to purchase or on perpetual lease under the Crown Lands Act 1915. The railway has been paid for from the proceeds of the land already selected. The conditions of purchase are similar to those stated in par. (i) above.

The total area held on 30th June, 1921, was 1,089,304 acres; of this area purchase has been completed of 484,587 acres, and 12,418 acres are held on perpetual and right of purchase leases, allotted before the Pinnaroo Railway Act was passed.

(iii) *Particulars of Conditional Purchases.* The subjoined table gives particulars of the areas alienated by conditional purchase, on fulfilment of the conditions, at the end of 1901, and from 1916 to 1920:—

SOUTH AUSTRALIA—AREAS ALIENATED UNDER AGREEMENTS TO PURCHASE, 1901 AND 1916 TO 1920.

Year	1901.	1916.	1917.	1918.	1919.	1920.
Area in acres	57,460	46,098	26,418	17,963	32,929	22,982

Particulars as to the total areas alienated and in process of alienation are given in a later part of this section. (See § 11.)

6. *Western Australia.*—The various types of selection under which the freehold can be alienated by conditional purchase in this State are as follows:—(i) Residential conditional purchase; (ii) non-residential conditional purchase; (iii) conditional purchase by direct payment; (iv) conditional purchase of blocks for vineyards, orchards, or gardens; (v) conditional purchase of grazing lands; (vi) free homestead farms; and (vii) town and suburban lots.

The following table shews the area of the selections for which grants were issued, the prescribed conditions having been fulfilled, during the year 1901 and from 1916 to 1921:—

WESTERN AUSTRALIA—AREAS SELECTED CONDITIONALLY FOR WHICH CROWN GRANTS WERE ISSUED, 1901 AND 1916 TO 1921.

Particulars.	1901.	1916.(a)	1917.(a)	1918.(a)	1919.(a)	1920.(a)	1921.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Free homestead farms	147	61,395	69,816	45,770	42,888	113,630	65,286
Conditional purchases	5,234	50,845	80,096	126,642	100,237	129,207	435,387
Poison land leases..	..	5,034	..	3,977	..	..	..
Total ..	5,381	117,274	149,912	176,389	143,125	242,837	500,673
Number of holdings	48	724	897	946	872	1,416	1,269

(a) For financial year ended 30th June.

Particulars as to the total areas alienated absolutely, and in process of alienation, are given in a later part of this section. (See § 11.)

Area Conditionally Alienated. The following table shews the areas conditionally alienated under various methods of selection during the year 1901 and from 1916 to 1921:—

WESTERN AUSTRALIA—AREAS CONDITIONALLY ALIENATED, 1901 AND 1916 TO 1921.

Particulars.	1901.	1916 (a)	1917.(a)	1918.(a)	1919.(a)	1920.(a)	1921.(a)
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
<i>Conditional Purchase—</i>							
(1) Deferred payments (with residence) ..	161,802	85,957	47,659	124,861	496,694(d)	1,143,240	184,846
(2) Deferred payments (without residence) ..	46,498	31,137	20,426	43,951	49,766	114,094	49,334
(3) Direct payments (without residence) ..	1,909	208	146	597	840	127	326
<i>Free Homestead Farms</i> ..	63,623	32,549	21,357	21,818	24,059	53,550	151,957
<i>Under the Agric. Lands Purchase Acts</i>	4,295	1,026	96	2,813	38,890	57,035	5,926
<i>Grazing Leases.</i> ..	64,834	157,712	145,956	352,535	.. (d)	.. (d)	37,622
<i>Poison Land Leases(b)</i> ..	9,530	..	..	..	..	..	..
<i>Workingmen's Blocks(c)</i> ..	8	1	..	..	..	5	..
Total ..	351,999	308,590	235,640	546,575	610,249	1,368,051	430,011
Number of holdings ..	1,888	860	637	973	1,136	2,621	2,132

(a) For year ended 30th June. (b) Provisions repealed by Act of 1906. (c) Closer settlement. (See § 8, 7.) (d) Deferred payments (with residence), combined with grazing leases.

Particulars as to the total areas in process of alienation are given in a later part of this section. (See § 11.)

7. *Tasmania*.—The various types of conditional purchases in this State are as follows :—(i) Selection of rural land ; (ii) homestead areas ; (iii) selection in mining areas ; and (iv) sales by auction on credit, either of town or rural lands.

The following table shews the areas alienated absolutely under systems of conditional purchases and sales on credit, the conditions having been fulfilled, and also shews the areas sold conditionally and the applications for conditional purchases received and confirmed, during the year 1901 and from 1916 to 1920 :—

TASMANIA.—CONDITIONAL PURCHASES, 1901 AND 1916 TO 1920.

Particulars.	1901.	1916.	1917.	1918.	1919.	1920.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
<i>Completion of Conditional Purchases(a)</i> ..	23,781	54,668	35,646	52,761	80,134	102,857
<i>Sold Conditionally—</i>						
Free Selections	40,004	35,716	21,686	24,796	24,084	32,248
Homestead Areas	9,108	99	90	90	40	40
Auction Sales on Credit	12,961	2,235	2,782	859	769	2,028
Other Sales (Town Lands)	636	479	515	675	412	733
Total	62,709	38,529	25,073	26,420	25,305	35,049
<i>Applications—</i>						
Received	1,444	842	913	1,499	1,212	1,836
Confirmed	768	328	344	350	437	524

(a) Including selections and sales on credit.

Particulars of total areas alienated and in process of alienation are given hereinafter. (See § 11.)

§ 7. Leases and Licenses.

1. *Introduction*.—Leases and licenses are issued in all the States and in the Northern Territory for various terms and upon various conditions. In Victoria, Queensland, South Australia, and the Northern Territory perpetual leases are issued for an indefinitely long period upon payment of an annual rent, while in all the States leases or licenses of comparatively large areas may be obtained for pastoral purposes. Provision has also been made in all the States for convenient forms of leases and licenses for various special purposes, and also for special classes of lands. The leases and licenses dealt with below are exclusive of those issued under Closer Settlement and kindred Acts, and of those issued for mining and auxiliary purposes. (See §§ 8 and 9.)

2. *New South Wales*.—The following are the various types of leases and licenses issued in this State :—(i) Conditional leases ; (ii) conditional purchase leases ; (iii) settlement leases ; (iv) improvement leases ; (v) annual leases ; (vi) residential leases ; (vii) special leases ; (viii) snow leases ; (ix) pastoral leases ; (x) scrub leases ; (xi) inferior lands leases ; (xii) occupation licenses ; (xiii) Western lands leases ; (xiv) homestead farm leases ; (xv) suburban holdings leases ; (xvi) Crown leases ; (xvii) irrigation farm leases ; (xviii) week-end leases ; (xix) leases of town lands ; (xx) returned soldiers' special holdings.

On the 30th June, 1921, there were 57,939 leases and licenses current under the Lands Department and the Western Land Board, comprising 115,246,873 acres of Crown lands. Of these leases 3,039, comprising 75,984,447 acres, are held under the Western Lands Acts.

The following table shows the areas held under various descriptions of leases and licenses at the end of the year 1901, and at the end of 1917-18 and following financial years, and also the area and rental of leases current on the 30th June, 1921 :—

NEW SOUTH WALES.—AREAS OCCUPIED UNDER LEASES AND LICENSES,
1901 AND 1918 TO 1921.

Leases and Licenses.	1901.	1917-18.	1918-19.	1919-20.		1920-21.	
				Area.	Rent.	Area.	Rent.
	Acres.	Acres.	Acres.	Acres.	£	Acres.	£
Pastoral ..	44,805,221	1,136,475	677,221	627,833	5,504	569,425	4,778
Outgoing pastoral leases ..	..	725,312	677,221	627,833	5,504	569,425	4,778
Western land leases and licenses (a) ..	..	73,754,817	75,243,327	75,450,265	112,007	75,984,447	112,204
Occupation (i) Ordinary ..	25,812,215	5,085,034	4,111,467	3,023,750	7,502	3,191,644	6,956
licenses (ii) Preferential ..	12,985,651	1,159,345	966,613	806,755	3,124	738,554	2,957
Homestead leases ..	10,953,388	153,275	51,074	35,687	55	35,687	55
Condit ⁿ (i) Gazetted ..	13,014,055	14,831,535	14,468,840	14,340,048	191,352	14,149,642	192,694
leases (ii) Not gazetted (under provisional rent) ..	966,887	39,523	81,735	157,218	1,810	137,897	1,149
Conditional purchase leases ..	..	433,228	408,768	384,868	13,600	368,669	12,578
Settlement leases ..	3,468,675	4,571,864	4,479,135	4,248,826	55,716	3,973,171	54,526
Improvement ..	5,551,060	4,355,297	3,962,870	3,688,890	24,289	3,288,555	22,587
Annual ..	6,755,942	2,516,954	2,552,665	2,953,296	23,074	2,409,661	20,506
Scrub ..	1,535,415	1,689,956	1,658,675	1,537,704	6,138	1,502,434	5,948
Snow land ..	79,582	131,420	134,420	134,424	1,272	129,020	1,137
Special ..	124,877	664,935	663,919	703,673	37,929	743,049	38,033
Inferior land ..	288,530	73,711	71,710	69,710	254	69,710	254
Artesian well ..	358,071	51,200	..	..	..	..	..
Blockholders' ..	..	1	1	1	6	1	6
Residential leases (on gold and mineral fields) ..	5,751	13,675	13,511	13,327	1,635	12,991	1,670
Church and school lands ..	97,207	11	11	11	330	11	330
Permissive occupancies (b) ..	118,634	1,156,416	1,365,570	1,774,935	13,559	1,878,675	11,935
Prickly pear leases ..	..	42,558	41,148	37,692	431	35,932	433
Crown leases ..	..	2,449,587	2,694,879	3,092,904	34,521	3,664,798	38,512
Homestead farms ..	..	1,081,622	1,410,612	1,889,109	71,020	2,296,848	77,099
Suburban holdings ..	..	38,643	41,227	40,198	4,401	45,475	4,830
Week-end leases ..	..	87	240	281	66	418	112
Leases of town lands ..	..	17	17	19	47	71	226
Returned soldiers' special holdings ..	..	2,575	10,952	17,888	2,045	20,118	2,079
Total under Lands Dept. & Western Land Board ..	126,921,161	116,159,073	115,110,607	115,631,342	611,247	115,246,873	613,594

(a) Includes permissive occupancy.

(b) Permissive occupancies in the Western Division not included.

The total annual rent derived from the leases and licenses issued by the Lands Department and the Western Lands Board amounted to £613,594, or an average of 1.28 pence per acre. Particulars regarding leases and licenses issued by the Mines Department are given in a later part of this section. (See § 9, *Occupation of Crown Lands for Mining Purposes.*)

3. Victoria.—The various types of leases and licenses (exclusive of Closer Settlement and Mines Department leases and licenses) which may be issued in this State are as follows :—(i) Grazing area leases ; (ii) selection purchase leases ; (iii) perpetual leases ; (iv) Mallee perpetual leases ; (v) licenses of auriferous lands ; (vi) swamp or reclaimed lands leases ; (vii) grazing licenses, (viii) leases and licenses for other than pastoral purposes ; and (ix) State forests and timber reserves licenses.

Areas held under Leases and Licenses. The following statement shows the areas of Crown lands occupied under leases and licenses at the end of the year 1901 and from 1916 to 1920 :—

**VICTORIA.—OCCUPATION OF CROWN LANDS UNDER LEASE OR LICENSE,
1901 AND 1916 TO 1920.**

Tenure.	Area in Acres.					
	1901.	1916.	1917.	1918.	1919.	1920.
Pastoral Leases	39,450					
Grazing Area Leases	2,338,819	2,502,556	2,573,143	2,503,197	2,408,481	2,329,843
Grazing Licenses—						
Land Acts 1890-91	5,908,985					
Land Acts 1901 (excl. of Mallice)	..	4,617,510	4,493,453	5,069,740	5,974,069	6,242,276
Mallice Lands .. ..	..	4,974,132	5,028,808	2,796,686	4,981,503	4,908,543
Auriferous Lands (Licenses)	377,127	77,393	74,032	71,400	68,452	65,590
Swamp Lands (Leases)	4,200	3,825	3,670	3,412	1,759	1,478
Perpetual Leases	8,137	7,629	7,761	7,559	7,559	7,559
Mallice Pastoral Leases	7,980,592	{ ..	..	..	..	..
Mallice Allotment Leases .. ..	..	..	..	..	..	..
Perpetual Leases under Mallice	..	..	..	..	..	..
Land Acts 1890-1901	448,812	220,914	202,943	197,253	139,653	141,937
Wattles Act 1890	4,427	..	..	..	..	..
Total	17,110,709	12,433,959	12,383,810	10,649,247	13,531,476	13,696,746

4. *Queensland.*—In this State Crown lands may be occupied under the following types of leases and licenses :—(i) Grazing homesteads ; (ii) grazing farms ; (iii) occupation licenses ; (iv) special leases ; (v) perpetual lease selections ; (vi) perpetual lease prickly-pear selections ; (vii) pastoral leases ; (viii) preferential pastoral leases ; (ix) auction perpetual leases (town, suburban, and country) ; (x) non-competitive leases. An applicant for a grazing homestead or grazing farm may not hold more than 60,000 acres, and the term of the lease may not exceed 28 years. The rents of grazing selections are redetermined by the Land Court for each period of seven years, and those of pastoral holdings for each period of ten years.

(i) *Grazing Homesteads.* Lands opened for grazing selections are available for fifty-six days as grazing homesteads only. In the case of land selected up to 31st December, 1916, personal residence was necessary for the first five years, and prior to the expiration of such period or the earlier death of the lessee, a grazing homestead could not be assigned or transferred. Without the special permission of the Minister it could not be mortgaged during the five years except to the Agricultural Bank ; thereafter the lease was subject to the condition of occupation. Since 1st January, 1917, grazing homesteads are subject to personal residence by the selector during the whole term of the lease, but the restrictions on assignment or transfer still operate only during the first five years.

(ii) *Grazing Farms.* In order to obtain priority of claim the applicant may tender an annual rent higher than the notified one, for the first seven years. As soon as the land is fenced the selector becomes entitled to a lease, and may thereafter transfer or mortgage the same. The lease is subject to the condition of occupation during the whole term. The Crown may resume the whole or part of the lease.

Particulars of the selection of grazing farms and grazing homesteads are given in the following paragraph.

(iii) *Grazing Farms, Homesteads, and Scrub Selections.* The following table shows the number of grazing farms, grazing homesteads, and scrub selections, for which applications were accepted in 1901 and from 1916 to 1921 :—

**QUEENSLAND.—GRAZING FARMS, HOMESTEAD, AND SCRUB SELECTIONS,
1901 AND 1916 TO 1921.**

Year.	Grazing Farms.		Grazing Homesteads.		Scrub Selections.		Total.	
	No.	Area.	No.	Area.	No.	Area.	No.	Area.
		Acres.		Acres.		Acres.		Acres.
1901 ..	247	1,371,283	47	290,785	19	48,450	313	1,710,518
1916 ..	112	1,412,652	247	3,065,096	..	..	359	4,477,748
1917 ..	129	1,925,059	197	2,243,218	..	..	326	4,168,277
1918 ..	175	3,111,716	210	2,597,571	..	..	385	5,709,287
1919 ..	292	4,437,564	196	2,094,413	..	..	488	6,531,977
1920 ..	167	2,003,034	296	2,807,409	..	..	463	4,816,443
1921 ..	88	949,432	221	1,853,990	..	..	309	2,803,422

The average rent in 1920 was 0.76d. per acre for grazing farms and 1.49d. per acre for grazing homesteads.

Particulars of total areas held under leases and licenses are given in a later part of this section. (See § 11.)

(iv) *Occupation Licenses.* Annual licenses are granted to occupy Crown lands which have been declared open for such occupation by notification in the *Gazette*. The rent is as specified by the notification or as bid by the licensee, but the Minister may by notice before the 1st September in any year increase the rent. The total number of licenses in force at the end of the year 1920 was 2,922, comprising an area of 52,860 square miles, the total rent being £51,474. Particulars of the area held under license for previous years are given in a later part of this section. (See § 11.)

(v) *Special Leases.* Leases of any portion of Crown land may be issued for a term not exceeding thirty years to any person for any manufacturing, industrial, business or recreation purposes. Leases for a similar term may be issued for any country lands reserved for public purposes and which are infested with noxious weeds.

During the year 1920 there were 135 leases for special purposes granted, comprising an area of 6,511 acres, the total annual rent being £1,081, and there were extant at the end of the year 905 such leases, comprising an area of 66,594 acres and reserving rents amounting to £5,983 per annum. In addition, 100 leases of reserves, aggregating 39,173 acres, were granted at rentals amounting to £769 per annum, the total number of these leases of reserves in force at the end of the year being 475, comprising an area of 160,185 acres and reserving rents amounting to £1,810. Particulars of special leases for previous years are given in a later part of this section. (See § 11.)

(vi) *Perpetual Lease Selections.* Up to 31st December, 1916, land proclaimed to be open for agricultural farm selection (see § 6, 4) might also be opened for perpetual lease selection, and the latter mode might be conceded priority of application over the former. The rent for the first period of ten years of the lease was $1\frac{1}{2}$ per cent. of the proclaimed purchase price of the land for agricultural farm selection. The rent for each succeeding period of ten years was determined by the Land Court. Similar conditions of occupation and improvement as were prescribed for agricultural farms were attached to perpetual lease selections. From 1st January, 1917, land opened for agricultural selection may be opened only for perpetual lease selection, and land opened for prickly-pear selection may be opened only for perpetual lease prickly-pear selection. In the case of perpetual lease selections, the rent for the first period of 15 years is $1\frac{1}{2}$ per cent. of the notified capital value of the land, and for each succeeding period of 15 years may be determined by the Land Court. In the case of perpetual lease prickly-pear selections, no rent is payable during the pear-clearing period, but thereafter rents are paid in the same manner as for perpetual lease selections. The conditions of selection are similar to those for the previous tenures of agricultural farms and prickly-pear selections.

QUEENSLAND.—PERPETUAL LEASE SELECTIONS, 1916 TO 1921.

Particulars.	1916.	1917.	1918.	1919.	1920.	1921.
Number ..	294	605	898	1,285	1,308	1,343
Area acres	114,011	207,581	305,873	609,483	490,546	419,886
Rent £	1,806	3,141	4,696	8,055	6,847	10,717

Particulars of perpetual lease prickly-pear selections taken up, 1917 to 1921, were as follows :—

QUEENSLAND.—PERPETUAL LEASE PRICKLY-PEAR SELECTIONS, 1917 TO 1921.

Particulars.	1917.	1918.	1919.	1920.	1921.
Number ..	180	178	460	386	270
Area acres	141,336	153,151	514,064	435,299	270,985

(vii) *Special Licenses.* Licenses to cut timber or to dig for any stone, gravel, earth shells, or guano, may be issued.

(viii) *Pastoral Leases.* All pastoral leases are held under the Land Act 1910. Lands open for pastoral lease may be leased for a period not exceeding thirty years. The annual rent per square mile, for the first ten years must be as notified in the *Gazette*, or in case of competition, bid at auction. If the value of the holding becomes enhanced by the development of public works in the neighbourhood, or by the discovery of minerals on or near the holding, the rent may be redetermined. A new pastoral tenure, as from 1st January, 1917, was introduced by the amending Act of 1916, viz., preferential pastoral lease. Holdings under this tenure are confined to persons with no interests or limited interests in pastoral leases, and priority of application may be obtained by an applicant undertaking to reside on the holding personally during the first seven years.

The following table shews the total areas of pastoral leases occupied under the various Acts at the end of the year 1901 and from 1916 to 1920 inclusive:—

QUEENSLAND (a).—PASTORAL LEASES OCCUPIED UNDER VARIOUS ACTS,
1901 AND 1916 TO 1920.

Particulars.	Area in Square Miles.					
	1901.	1916.	1917.	1918.	1919.	1920.
Pastoral Leases Act 1869	39,307	..	..	..	..	..
Crown Lands Act 1884	243,586	..	..	..	..	..
Land Act 1897	15,046	..	..	..	..	..
Pastoral Leases Act 1900	50,076	..	..	..	..	..
Pastoral Holdings New Leases Act 1901 .. ..	..	..	..	..	..	..
Land Act 1902 .. ..	..	..	..	..	..	..
Land Act 1910 .. ..	..	337,423	330,596	331,937	325,709	321,554
Land Act Amendment Act 1916 (preferential) .. ..	..	..	636	1,935	4,026	5,897
Total	318,015	337,423	331,232	333,872	329,735	326,951

(a) Up to the year 1910, resumed parts of pastoral holdings were included in these figures, but since that year they are held under occupation license, and are included in the figures under that head.

The gross area held at the end of the year 1920 for purely pastoral purposes (under *Occupation Licenses and Pastoral Leases*) was 379,811 square miles, at rentals aggregating £419,695 per annum. The area was 7,097 square miles less than that for the previous year, and the rental was £43,888 more. The average rent was £1 2s. 1½d. per square mile, as against 19s. 5½d. for the previous year.

Ten non-competitive perpetual leases were issued during 1920, the total area being 223 acres, and the annual rent £14.

5. *South Australia.*—The following are the various types of leases and licenses which are issued in this State:—(i) Perpetual leases; (ii) miscellaneous leases; (iii) miscellaneous grazing and cultivation leases; (iv) irrigation and reclaimed swamp leases; (v) licenses for special purposes; (vi) leases under the Pastoral Act 1904; and (vii) leases with right of purchase.

(i) *Perpetual Leases.* Surveyed Crown lands are available for perpetual leases as well as for agreements to purchase under the Crown Lands Act of 1915. Under the Crown Lands Act of 1888 perpetual leases were granted in perpetuity, and the rent determined for each period of fourteen years, at least twelve months before the expiration of each such period. Under the Crown Lands Act of 1893 the revaluation section was repealed and the rent was fixed in perpetuity, generally at rates varying from 2 per cent. to 4 per cent. per annum on the value of the land as fixed by the Land Board. The condition as to payment of rent of land offered under provisions of the Act of 1915 in newly surveyed mallee lands is that no rent is charged for the first four years, and from the fifth to the end of the tenth year payment is made at the rate of 2 per cent. per annum, the full rate at 4 per cent. becoming due at the commencement of the eleventh year. All minerals are reserved to the Crown, and the Crown may reserve any part of the land for the purposes of roads, water conservation, mining, &c., compensation being payable to the lessee for loss occasioned by resumption.

(ii) *Areas held under Lease.* The following table shews the areas held under leases and licenses at the end of the year 1901 and from 1916 to 1920 :—

SOUTH AUSTRALIA.—AREAS UNDER LEASES AND LICENSES, 1901 AND 1916 TO 1920.

Particulars.	1901.	1916.	1917.	1918.	1919.	1920.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Right of Purchase Leases	5,639,519	2,504,143	2,440,731	2,402,355	2,329,100	2,285,421
Perpetual Leases ..	7,115,782	14,851,173	14,810,026	14,625,839	14,650,223	14,880,901
Pastoral Leases ..	68,916,125	95,016,370	100,889,010	95,264,050	96,358,450	100,904,600
Other Leases ..	3,905,729	1,128,630	1,049,522	617,654	806,029	880,420
Total held under Lease	85,577,155	113,500,316	119,189,289	112,909,898	114,143,802	118,951,432

6. *Western Australia.*—The following are the various types of leases and licenses issued in this State:—(i) Pastoral leases; (ii) permits and licenses to cut timber; (iii) special leases; and (iv) licenses for quarrying.

Areas held under Leases and Licenses. The following table shews the number and areas of leases and licenses issued during the year 1901 and from 1916 to 1921 :—

WESTERN AUSTRALIA.—LEASES AND LICENSES ISSUED, 1901 AND 1916 TO 1921.

Particulars.	1901.	1916.(a)	1917.(a)	1918.(a)	1919.(a)	1920.(a)	1921.(a)
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Pastoral Leases ..	19,909,251	7,489,683	9,436,159	20,287,672	39,016,708	18,961,478	20,303,900
Special Leases ..	149	1,707	626	8,097	16,845	1,509	7,762
Leases in Reserves ..	324	434,455	128,402	87,712	539,041	215,134	38,573
Timber Leases and Permits(b)	109,630	219,088	329,370	84,770	93,171	..	..
Residential Lots ..	221	..	..	..	..	..	..
Total ..	20,019,575	8,144,933	9,894,557	20,468,251	39,665,763	19,178,121	20,350,235
Number issued ..	1,466	1,105	510	508	1,014	545	694

(a) For financial year ended the 30th June. (b) No timber leases granted since 1903. Timber leases and permits are now under the control of the Forests Department.

Particulars as to the total area occupied under leases and licenses are given in a later part of this section. (See § 11.)

7. *Tasmania.*—The several forms of leases and licenses in this State are as follows :—(i) Grazing leases; (ii) miscellaneous leases; (iii) timber licenses; (iv) occupation licenses; (v) temporary licenses; and (vi) forest permits.

Areas held under Leases and Licenses. The following table shews the areas of Crown lands occupied under leases and licenses at the end of the year 1901 and from 1916 to 1920 :—

TASMANIA.—LEASES AND LICENSES ISSUED, 1901 AND 1916 TO 1920.

Particulars.	1901.	1916.	1917.	1918.	1919.	1920.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Ordinary Leased Land ..	1,280,688	1,434,113	1,193,169	1,201,169	1,341,000	1,540,000
Island ..	149,165	207,630	197,406	197,918	151,000	101,000
Land Leased for Timber ..	40,768	146,881	155,889	183,804	218,784	230,524
Total ..	1,470,621	1,788,624	1,546,464	1,582,891	1,710,784	1,877,524

8. *Northern Territory.*—The system of land settlement in the Northern Territory has been reorganised by the Commonwealth Government. A New Lands Ordinance was passed in December, 1912, known as the Crown Lands Ordinance 1912, and future

disposal of land in the Territory will be made in accordance with this Ordinance, which provides for a leasehold system only, and no further alienation of Crown lands will be permitted, unless such alienation is in pursuance of existing agreements. Under this Ordinance, the classification and control of Crown lands is in the hands of a Board, consisting of the Director of Lands and two other officers appointed by the Administrator. The classified land is leased in blocks, the maximum areas for agricultural lands being 1,280 acres in class 1, and 2,560 acres in class 2; for mixed farming and grazing, 12,800 acres in class 1, and 38,400 acres in class 2; for pastoral purposes, 300 square miles in class 1, 600 square miles in class 2, and 1,500 square miles in class 3. Before offering any land for leasing, the Board fixes the annual rental, but every lease is subject to reappraisal of rent at specified periods, viz., every fourteen years in the case of town lands, and every 21 years in the case of agricultural and pastoral lands.

Leases under this Ordinance are in perpetuity except as regards pastoral and miscellaneous leases, the maximum term of which is fixed by the Classification Board when advertising lands for lease, but does not exceed 21 years for miscellaneous lease and first class pastoral lands, or 42 years for second and third class pastoral land.

In order to promote settlement in the Territory, the first 5,000 blocks of agricultural land taken up on perpetual lease under this Ordinance will be rent free during the life of the applicant, or for 21 years from the commencement of the lease, whichever period is longer.

The lessee must make a home on the land within two years after the date of the lease and thereafter reside on the land for a period of six months in each year in the case of land for cultivation, and four months in the year in the case of mixed farming and grazing; he must also fence, improve, and stock his land in accordance with the terms of the lease.

Amending Ordinances have been passed from time to time, and regulations have been made modifying improvement conditions on leases, also allowing for the issue of licenses to graze stock on Crown lands. In November, 1918, an important amendment to the principal Ordinance was passed, amending Section 48, by providing that no resumptions should be made from pastoral leases held under that Ordinance, in class 1 during the first ten years of the lease, and in classes 2 and 3 during the first fourteen years of the lease, and at no time within 5 miles of the Head Station during the whole term of the lease, except for public purposes such as railways, tramways, &c., as specified in sub-section 2 of that section.

The various types of leases, licenses, and permits current are as follows:—(i) Agricultural leases; (ii) pastoral leases; (iii) special leases; (iv) town leases; (v) miscellaneous leases; (vi) leases with right of purchase; (vii) tropical products leases; (viii) leases for horsebreeding stations; (ix) licenses (grazing, occupation, &c.); and (x) pastoral and other permits. (See § 2, 7.) The permit system, and the granting of leases with right of purchase, tropical products leases, and leases for horsebreeding purposes, were discontinued in 1911. Those issued before that year have, to a great extent, expired and been cancelled, and the land otherwise brought under the Ordinance.

Areas held under Lease, License, and Permit. The following table shews the total areas held under lease, license, and permit at the end of the years 1901 and 1916 to 1921:—

**NORTHERN TERRITORY.—AREA HELD UNDER LEASE, LICENSE, OR PERMIT,
1901 AND 1916 TO 1921.**

Particulars.	1901.	1916.	1917.	1918.	1919.	1920.	1921.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Right of Purchase Leases	1,067	436	436	436	436	356	356
Pastoral Leases and Grazing Licenses ..	111,476,240	110,560,129	103,993,600	114,264,320	117,420,160	133,444,160	136,464,960
Other Leases and Licenses	1,176,981	109,353	108,387	199,362	5,297,610	9,829,555	1,211,337
Total ..	112,654,288	110,669,918	104,102,423	114,464,118	122,718,206	143,274,071	137,676,653

On 31st December, 1921, the areas held under leases and licenses were :—Pastoral leases, 119,069,760 acres; annual pastoral leases, 33,280 acres; pastoral permits, 2,211,840 acres; grazing licenses, 15,150,080 acres; miscellaneous leases (including water leases), 1,197,281 acres; leases and permits not otherwise defined, 14,412 acres; mining leases, 2,877 acres; tin dredging leases, 329 acres; Mission Station leases, 1,700 square miles. There were also 32,724 square miles under reserve for Aboriginal natives of Australia, as well as 151,798 square miles of country, mostly over pastoral holdings, under licenses to prospect for mineral oil and coal, and 143 square miles under licenses to prospect for mica.

§ 8. Closer Settlement and Soldier Settlement.

1. **Introduction.**—In all the States, Acts have been passed authorising the Governments to repurchase alienated lands for the purpose of cutting them up into blocks of suitable size and throwing them open to settlement on easy terms and conditions. Special Acts have also been passed in several of the States authorising the establishment on particular lines of co-operative communities, village settlements, and labour colonies. Lands may be acquired either compulsorily or voluntarily in New South Wales, Victoria, Queensland, and Tasmania, but only voluntarily in South Australia and Western Australia. A scheme of soldier settlement, for those who took part in the European war of 1914–1918, was inaugurated in connexion with repatriation activities, and has been very largely availed of. Particulars of the operation of the scheme will be found in Section XXVIII, § 9 *infra*. In some cases, areas acquired for Closer and Soldier Settlement have been transferred to other uses. The bulk of the land set apart under these projects has been specially acquired from private owners.

The following table gives particulars up to the latest available date of operations under the Closer Settlement Acts for each State and the whole Commonwealth :—

CLOSER SETTLEMENT.—TOTAL AREAS ACQUIRED AND ALLOTTED AT 30th JUNE, 1921.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Area acquired . . acres	1,297,624	575,900	785,311	783,862	446,804	96,346	3,085,847
Purchasing price £	5,504,437	4,298,765	1,955,060	2,623,073	421,373	338,437	15,146,195
Farms, &c., { No.	2,985	3,619	2,915	2,789	739	800	13,347
allotted { acres	1,293,873	514,773	738,659	718,484	343,237	80,911	3,689,937

The following table shows the areas of private lands acquired in each State in the financial year 1900–01, and at the end of each year from 1916 to 1921 :—

CLOSER SETTLEMENT.—AREAS OF PRIVATE LANDS ACQUIRED, 1901 AND 1916 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901 .. ..	..	28,553	132,760	..	46,624	..	207,937
1916	745,883	564,600	785,311	661,117	446,804	73,320 (a)	3,277,035
1917	747,204	567,943	785,311	685,217	446,804	75,259 (a)	3,307,738
1918	759,526	565,442	785,311	685,611	446,804	75,259 (a)	3,317,953
1919	823,899	566,725	785,311	691,109	446,804	75,259 (a)	3,389,107
1920	1,215,187	569,808	785,311	710,559	446,804	76,073 (a)	3,803,742
1921	1,297,624	572,262	785,311	726,283	446,804	84,053 (a)	3,912,337

(a) Including 10,882 acres of Crown lands.

**SOLDIER SETTLEMENT.—AREAS ACQUIRED AND ALLOTTED AT
30th JUNE, 1921.**

	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Area acquired or set apart acres	949,609	2,021,810	579,748	1,018,213	223,507	264,508	5,057,395
Purchase price .. £	4,643,584	12,346,847	246,627(a)	3,239,671	450,625	1,954,141	22,911,495(c)
Farms, etc., allotted } No.	2,107	6,090	2,316	1,900	402	1,553	14,368
} acres	949,609	1,389,423	575,453	1,080,812	212,053	264,508	4,451,858
Area of private land acquired to date .. acres	949,603	1,577,670	40,206	(b)	..	264,508	2,831,993(c)

(a) The price of a considerable area resumed has not yet been determined.

(b) Not available.

(c) Incomplete.

2. **Government Loans to Settlers.**—For the purpose of promoting pastoral, agricultural, and similar pursuits, and with the object of assisting settlers in erecting buildings and carrying out improvements on their holdings, general systems have been established in all the States and in the Northern Territory under which financial aid is rendered to settlers by the State Governments. These general systems are more particularly referred to in the section in this book dealing with "Agriculture." In many of the Closer Settlement and similar Acts, however, special provisions have been inserted with the object of lending money to settlers taking up land under these Acts, with which to build homes or effect improvements. The principal features of these provisions are referred to below.

3. **New South Wales.**—Under the Closer Settlement Act of 1901 provision was made for the acquisition of private lands or of Crown lands held under lease, for the purpose of closer settlement. No power of compulsory resumption was conferred by the Act, which was in consequence practically inoperative. Under the Closer Settlement Act of 1904 and subsequent amendments, and the Promotion Section of the Closer Settlement Acts, the Government is empowered to resume private lands, either by agreement or by compulsory purchase, and to alienate them on favourable terms to persons who desire to settle and make homes for themselves and their families on the soil. Land acquired under the Closer Settlement Acts is subdivided into blocks or farms, and by notification in the *Government Gazette* is declared to be a settlement purchase area available for application. The *Gazette* notice also gives all necessary information as to the class and character of the land, and the capital value, area, &c., of each block or farm.

(i) **Closer Settlement Purchase.** Under this tenure a settler may acquire the freehold of the land under a system of deferred payments. A deposit of $6\frac{1}{2}$ per cent. of the notified value of the settlement purchase must be lodged with the application, except in the case of discharged soldiers or sailors, who are not required to pay any deposit, and a similar amount by way of instalment, paid annually until the purchase-money, together with interest at the rate of $5\frac{1}{2}$ per cent., is paid off. Prior to 1st September, 1917, the deposit and annual instalments ranged from 5 per cent. to 6 per cent., and the interest from 4 per cent. to 5 per cent. Under this system the balance due to the Crown will be paid off in thirty-one years, the holding then becoming a freehold. A condition of residence for five years attaches to every settlement purchase. Under the amending Act of 1918, interest only may be paid in lieu of such instalments for such periods, and subject to such conditions as the Minister may determine. The Minister may also postpone payment conditionally or unconditionally of such interest, or one or more instalments of purchase money, if satisfied of the inability of the holder to pay, provided that the amount owing to the Crown does not exceed the original capital value plus 80 per cent. of the value of improvements effected on the settlement purchase since commencement of title.

(ii) **Closer Settlement Permissive Occupancies.** The Minister may grant permits to occupy any lands within a settlement purchase area which remain undisposed of, subject to certain terms and conditions.

(iii) **Sales by Auction.** Areas within closer settlement districts necessary for township settlement may be set apart by notification in the *Gazette*. Allotments, each of which may not exceed half an acre in extent, within such areas may be sold by auction.

(iv) *The Promotion Section of the Closer Settlement Acts.* Under this Section any three or more persons or any one or more discharged soldiers within the meaning of the Returned Soldiers' (Amendment) Act 1917, each of whom is qualified to hold settlement purchases and who desire to purchase from the same owner any private lands may, upon entering into an agreement with the owner and subject to valuation by the Advisory Board and the Savings Bank Commissioners, acquire such lands through the Minister on closer settlement conditions.

The number of farms allotted since the passing of the Closer Settlement Promotion Act 1910 to date is 2,818; the area 1,200,488 acres, and the amount advanced £5,991,701.

(v) *Areas Acquired and Disposed of.* Up to the 30th June, 1921, 1,311 estates had been opened for settlement under the Closer Settlement Acts.

The following statement gives particulars of the aggregate areas opened up to the 30th June in each year from 1916 to 1921 :—

NEW SOUTH WALES—CLOSER SETTLEMENT AREAS, 1916 TO 1921.

Year ended 30th June.	Areas.			Capital Values.		
	Acquired Lands.	Adjoining Crown Lands.	Total.	Acquired Lands.	Adjoining Crown Lands.	Total.
	Acres.	Acres.	Acres.	£	£	£
1916	745,883	91,987	837,870	2,870,116	167,962	3,038,078
1917	747,204	91,996	839,200	2,895,638	168,175	3,063,813
1918	759,526	91,996	851,522	2,947,221	170,259	3,117,480
1919	801,366	94,254	895,620	3,173,885	175,331	3,349,216
1920	1,011,223	94,254	1,105,477	4,295,223	175,331	4,470,554
1921	1,475,175	94,881	1,570,056	6,440,490	176,164	6,616,654

The total area thus set apart has been divided into 3,350 farms, comprising 1,543,275 acres, the remaining area being reserved for recreation areas, roads, stock routes, schools, &c.

The following table gives particulars as to the disposal of the farms by closer settlement purchase for the years ended the 30th June, 1916 to 1921 :—

NEW SOUTH WALES.—CLOSER SETTLEMENT ALLOTMENTS, 1916 TO 1921.

Year.	Farms Allotted to Date:			Total Amount received in respect of Settlement Purchases.	Total Number of Applications received.
	Number.	Area.	Value.		
		Acres.	£	£	
1915-16 ..	1,609(a)	748,573(a)	2,860,636(a)	718,660	1,612
1916-17 ..	1,622	759,753	2,905,550	834,485	1,625
1917-18 ..	1,624	760,083	2,907,055	985,863	1,625
1918-19 ..	1,736	786,942	3,105,214	1,139,176	1,740
1919-20 ..	2,326	1,007,000	4,263,001	1,349,393	2,330
1920-21 ..	3,317	1,520,350	6,527,801	1,670,995	3,325

(a) Including 45 Settlement Purchase Farms of 24,714 acres, with a capital value of £107,716, since converted into Homestead Farms.

(vi) *Labour Settlements.* These settlements were founded by the Labour Settlements Acts 1893 and 1894, which were repealed by the Labour Settlements Act 1902. Land might be set apart for lease for a period of 28 years as a labour settlement under the superintendence of a Board of Control. The functions of the Board

of Control were to enrol members of the settlement; to make regulations concerning the work to be done; to apportion the work among the members; and to distribute the wages and profits. The Minister was empowered to grant financial assistance to the Board of Control. Only two settlements, those at Bega and Wilberforce, were established under the Act. The Labour Settlements Act 1902 was repealed by the Bega and Wilberforce Labour Settlements Act 1917, which dissolves the Boards of Control, and provides for the settlers applying for the blocks they occupy as Homestead Farms under the Crown Lands Consolidation Act 1913.

The Murrumbidgee Irrigation Act 1910 provides for the acquisition of 1,668,000 acres near Narrandera, in Riverina, for irrigation and other purposes in connexion with the Burrinjuck Irrigation Scheme. Part of this area has since been made available.

4. *Victoria.*—(i) *Closer Settlement Act 1915.* The Closer Settlement Act in Victoria is administered by a Board consisting of three persons appointed by the Governor in Council, and entrusted with power to acquire, either compulsorily or by agreement, private lands in any part of the State for the purpose of Closer Settlement. The Board may dispose of all lands acquired, either Crown lands or repurchased lands, on conditional purchase leases either as (a) farm allotments not exceeding £2,500 in value, (b) workmen's homes allotments not exceeding £250 in value, and (c) agricultural labourers' allotments not exceeding £350 in value. The price of the land must cover the cost of the original purchase and the cost of all improvements. Land acquired by the Board may also be sold in small areas in fee simple as sites for churches, public halls, butter factories, creameries, recreation reserves, or other public purposes.

The Board may approve of an agreement between an owner and one or more persons to purchase a farm or farms, not exceeding £2,500 in value. On the property being acquired by the Board, the applicant obtains a lease under Closer Settlement conditions.

(a) *Closer Settlement Leases.* Every conditional purchase lease is for such a term of years as may be agreed upon by the lessee and the Board, and payment must be made with interest at $4\frac{1}{2}$ per cent. per annum by sixty-three half-yearly instalments, or such lesser number as may be agreed upon. Under the Act, postponement of payment of instalments may be granted by the Board up to 60 per cent. of the value of improvements. The lessee must personally reside during eight months in each year on his allotment, and for six years he must carry out prescribed improvements. Thereafter he may, with permission, transfer, assign, mortgage or sublet his allotment. After twelve years, if all conditions have been fulfilled, a Crown grant, with the same residence condition as that contained in the lease, will be issued. In the case of workmen's homes allotments the land must be fenced within one year, and a dwelling-house to the value of at least £50 must be erected within the same time; within two years further improvements must be made to the value of at least £25. As regards agricultural labourers' allotments, a dwelling-house to the value of at least £30 must be erected within one year, and within two years the allotment must be fenced. In the case of workmen's homes and agricultural labourers' allotments, the lessee may at any time transfer, assign or sublet with the consent of the Board.

(b) *Advances to Settlers.* The Board may make advances for the purpose of fencing and building dwelling-houses, and is empowered to erect dwelling-houses, outbuildings, or improvements on any allotment at a cost not exceeding £500 for any one allotment. Any sum so expended is repayable, with interest added, by instalments extending over a prescribed period, not greater than twenty years. Provision has also been made for deferring payments in case of hardship, as well as for advances (to the extent of 60 per cent. of the value of the improvements) to enable work to be carried on. Special advances may also be granted to purchase wire netting in rabbit-infested districts.

(c) *Loans to Municipalities.* Loans may be made out of the Closer Settlements Fund for the purpose of carrying out any road-making or other public works within the boundaries of an estate.

(d) *Areas acquired and made available for Closer Settlement.* The following statement shows the operations which have taken place in Victoria under the provisions of the Closer Settlement Acts 1898 to 1915, up to the 30th June, 1901 and 1916 to 1921 :—

VICTORIA.—CLOSER SETTLEMENT, 1901 AND 1916 TO 1921.

(INCLUDING IRRIGATED AREAS.)

Year ended 30th June.	Total Area Acquired by Government to Date.	Total Cost to Date.	How Made Available for Settlement.						Number of Applications Granted to Date.	Total Receipts to Date.	Repayments of Principal to Date.	Area Available for Settlement.
			Farm Allotments.	Workmen's Homes Allotments.	Agricultural Labourers' Allotments.	Town Allotments. (a)	Roads and Reserves.					
	Acres.	£	Acres.	Acres.	Acres.	Acres.	Acres.	No.	£	£	Acres.	
1901	28,553	151,566	28,461	69	..	44	240	193	7,529			
1916	568,073	4,230,779	513,281	778	5,547	27,193		4,321	1,661,427	569,445	51,878	
1917	571,953	4,277,356	517,467	781	4,720	27,546	4,201	4,509	1,670,959	608,728	43,017	
1918	569,334	4,239,956	502,475	783	4,622	29,577	4,210	4,594	1,974,744	655,380	30,619	
1919	570,617	4,252,543	501,537	785	4,583	30,244	5,037	4,476	2,300,705	729,493	23,689	
1920	573,730	4,269,050	528,502	784	4,470	34,400	4,499	4,469	2,690,934	851,888	21,069	
1921	575,900	4,298,765	524,369	784	4,446	41,830	4,471	4,490	3,183,045	992,620	10,970	

(a) Includes all land sold other than under Conditional Purchase Lease.

Up to 30th June, 1921, there were also acquired under the Discharged Soldiers' Settlement Act 1917 (including Crown Lands and Closer Settlement Areas taken over), 2,021,810 acres, at a cost of £12,346,847. Applications granted numbered 6,090; and 1,459,136 acres were made available for farm allotments.

(ii) *The Small Improved Holdings Act 1906.* Under this Act, which has been repealed, 2,822 acres at a cost of £53,568 allotted to 260 settlers were purchased close to towns where industrial employment could be obtained by the settlers.

These settlements are now under the control of the Closer Settlement Board.

(iii) *Village Communities.* The rights of lessees of land in Village Communities are now provided for in the Land Act 1915. Certain unalienated Crown lands were surveyed into allotments of one to twenty acres. The price is not less than twenty shillings an acre. Additional areas may be acquired by conditional purchase. The rent is a nominal one for three years. The total amount of monetary aid advanced up to the 30th June, 1921, was £67,379, of which sum the amount repaid to date was £45,298. After three years a lease may be obtained.

On the 30th June, 1921, there were 249 settlers actually residing, and 118 not residing, but improving, making a total of 367 in occupation. Including wives and children the total number in residence was 1,005.

(iv) *Closer Settlement in the Irrigation Districts.* The movement for closer settlement in the irrigation districts started about twelve years ago, when the State adopted the policy of purchasing large areas of land commanded by irrigation schemes, and subdividing them for intensive culture. The management and supervision of these areas were formerly vested in two bodies—the Closer Settlement Board and the State Rivers and Water Supply Commission, but in order to do away with this dual control, the Amending Closer Settlement Act of 1912 (now incorporated in the Closer Settlement Act 1915) was passed, transferring to the Water Supply Commission the entire management, leasing, and general supervision of all such areas within irrigation districts. The State had expended between three and four million pounds on irrigation works, which were not being used to their full extent. Under the Goulburn Scheme, the largest of the State works, less than half the available water was being used, owing to lack of settlers to cultivate the land as irrigation requires. Previously, in the various districts the average size of farms varied from 400 to 600 acres, while under irrigation from about 12 to 80 acres will now give employment to a good-sized family and furnish them a comfortable living. The large farms of the irrigation districts could not be properly cultivated by their

owners, and the only way to make irrigation a success was to subdivide these holdings and bring in farmers to cultivate the smaller areas. To this end the State offered to buy suitable land in any district having a reliable and ample water supply, at a price fixed by impartial expert valuers, and has purchased 185,300 acres for this purpose, and now administers also the irrigated closer settlements established on Crown lands at Merbein and Nyah, which contain respectively about 8,300 acres and 3,800 acres. This land is sold to settlers on $31\frac{1}{2}$ years' terms with $4\frac{1}{2}$ per cent. interest on deferred payments, under what are known as closer settlement conditions, which, while providing for the liberal terms and advances referred to in this paragraph, require, on the part of the settler or his successor, residence on the block for at least eight months in each year. These payments are calculated on the Cr dit Foncier basis and are equalised through the whole period. As a result, the settlers by paying an additional $1\frac{1}{2}$ per cent., or 6 per cent. in all, in $31\frac{1}{2}$ years pay off both principal and interest. In the early stages of irrigated closer settlement the State undertook, where desired by settlers, to prepare portions of their holdings for irrigation by grading, seeding, check-banking, and constructing distributory channels, settlers being allowed to pay the cost of such works by instalments extending over ten years. The development of these settlements has, however, now reached such a stage that this is no longer necessary. Contract labour is available to new settlers, and there are facilities for the carrying-out of this work locally, but financial assistance to the same extent is still available. To further help the settler of limited means, the State will build a house and allow twenty years to pay for it. The cash payments required are as follows:—On houses costing less than £100, £10; on houses costing more, the cash payment varies from $12\frac{1}{2}$ to 30 per cent. of the estimated cost. The State also makes loans to settlers equal to 60 per cent. of the value of permanent improvements, these loans to be repaid in twenty years. Five per cent. interest is charged on all advances whether for houses, preparing land, or money furnished the settler. In the case of discharged soldiers, the cash deposits on both land and houses are dispensed with, and further concessions can be made in the form of suspension of payment of instalments during the first one, two, or three years of occupation. Last year 682 blocks were granted to new settlers, 636 of whom were discharged soldiers. During the past eleven years 148,500 acres have been settled in farms averaging forty-seven acres each—which are now the homes of 3,139 new settlers. At Shepparton, one of the oldest of these settlements, there are now 325 settlers living where there were originally twenty-six. At Cohuna, another early settlement, some settlers made such satisfactory progress, that they paid in full their land and other instalments, when their leases, which were for $31\frac{1}{2}$ years, were only some seven years old. In Koyuga there are fifty-one settlers with good houses, many young orchards, fine crops of lucerne and vegetables, where in November, 1910, there was not a house, a family, or an acre of cultivated land. There are now eighteen settlers' homes for every one that existed on these areas when repurchased by the State. One thousand seven hundred of the settlers are discharged soldiers.

The lands held in reserve for soldiers have been disposed of, but the Commission has on hand (in addition to the Red Cliffs Estate referred to hereunder) some 3,000 acres on the new Irrigation Settlement on the Macallister River at Maffra, in Gippsland. This area is temporarily occupied under lease, to give the soldier settlers there a living area under existing dry farming conditions, pending completion of the irrigation scheme, when the land will be made available in about 70 holdings.

The progress of settlers in the various established irrigation districts continues to be most satisfactory. The prices being obtained for their products have enabled a very large number to improve their position, while the high values now placed on and being obtained for irrigation lands is convincing evidence of the great advance made during the last few years.

The volume of production from the irrigated districts is increasing at a most rapid rate. At the Shepparton co-operative cannery, during the past season, 214,000 dozen cans of fruit were processed. To cope with the further great expansion of output in sight, the Government has advanced to this company a further large amount for the installation of the most modern canning machinery. The cannery has proved a great boon to the district, and a large number of applications for fruit-processing plants have been received from other centres, co-operative companies for this purpose having already been formed at Ardmona and Tongala.

The gratifying change in the financial position of settlers has considerably improved the security of the State. For example, at Rochester and Shepparton—two typical Irrigation Districts—settlers have not only paid the instalments due on their land, and largely increased the value of their herds and implements, but have, in three years, also doubled the value of permanent improvements effected on the land.

The Murray River Settlements, both at Nyah and Merbein, are each year becoming more prosperous. Already 226 qualified soldier settlers have been allotted irrigable blocks, but the demand for orchard lands in this part of the State became so keen, that, with a view to fully meeting all requirements, the Commission acquired the large estate of 30,000 acres known as Red Cliffs, adjacent to Mildura Settlement. It contains irrigable land sufficient to provide holdings for about 1,000 soldiers.

Two subdivisions in this estate have been made available for settlement, the first of which—that between the Murray River and the Mildura Railway—provided 295 irrigable holdings, and the second, on the west of the railway, 150 holdings. The combined area of these subdivisions is 7,500 acres. As the number of applicants largely exceeded the number of blocks available, a further portion of the irrigable area is now being prepared for settlement.

During the progress of the subdivision, some 800 soldiers, desirous of taking up blocks, have had constant employment in preparing the land for settlement, and many have gained useful experience in the local nursery, in which some 2,000,000 vines have been propagated with a view to enabling the settlers to obtain adequate supplies of rooted vines without loss of time.

A township has been laid out, on modern lines, and a very satisfactory sale of allotments has been effected, prices reaching as high as £9 per foot.

This settlement will be supplied with water from the Murray River by means of a powerful pumping plant, which will deliver the water through a concrete rising main into distributary channels lined with concrete to prevent seepage troubles.

It is anticipated that the new settlers on these areas will in a very few years be sharing in the general prosperity of this district.

5. Queensland.—(i) *Closer Settlement.* Under the provisions of the Act of 1906, private lands for closer settlement may be repurchased by the Crown, either by agreement or compulsorily.

(a) *Compulsory Acquisition.* The owner of an estate in possession, the whole of which is proposed to be taken compulsorily, has the right to retain in one block land of the value of £10,000 to £20,000, according to the value of the whole estate. The maximum sum which may be expended in any one year on the acquisition of land for the purpose of closer settlement is £500,000.

(b) *Disposal of Land.* A sufficient part of the land acquired must be set apart for roads, public reserves, and townships, and, up to the end of 1916, the remainder was proclaimed open for selection as agricultural farms under the Land Act 1910, which repealed the Land Acts 1897 to 1909, and under the Closer Settlement Act Amendment Act of 1913, the term of the lease was 40 years. The rent to be paid for the first year was equal to £10 for every £100 of the purchasing price; and (no payment being required during the second, third, or fourth years) an annual payment of £6 6s. 0d. for every £100, which continued from the fifth to the fortieth year, would, at the end of the term, have paid off the principal sum together with interest. From 1st January, 1917, the opening of land for agricultural farm selection has not been allowed. Under the present law, the remainder of the land (after provision for roads, reserves, etc.) is opened for selection as perpetual lease selections at an annual rent fixed by the Minister, but at a rate per cent. of the capital value not more than the rate of interest paid by the Government on the purchase money of the estate of which the land forms part. The deposit of 10 per cent. is abolished, but so also is the provision that no rent need be paid during the second, third, and fourth years of the term. The rent may be reappraised for each period of fifteen years.

(c) *Areas Acquired and Selected.* The following table gives particulars of the operations under the above Acts at the end of the year 1901 and of each year from 1916 to 1921 :—

QUEENSLAND.—CLOSER SETTLEMENT, 1901 AND 1916 TO 1921.

Year.				Number of Estates Acquired.	Total Area Acquired to Date.	Total Amount of Purchase Money.	Total Area Selected to Date. (a)
					Acres.	£	Acres.
1901	..	..	..	15	132,760	335,056	124,710
1916	..	..	..	29	785,311	1,955,060	589,047
1917	..	..	..	30	785,311	1,955,060	587,724
1918	..	..	..	30	785,311	1,955,060	595,719
1919	..	..	..	30	785,311	1,955,060	692,153
1920	..	..	..	30	785,311	1,955,060	737,850
1921	..	..	..	30	785,311	1,955,060	742,284

(c) In addition, at the end of the year 1920 there were 12,390 acres sold at auction and 3,424 acres retained by the Government for experimental farms and for other sales. For 1921 the corresponding figures were 12,310 and 4,703 acres.

The total area opened for selection up to the end of the year 1920 was 763,546 acres, of which 737,850 acres had been selected by 2,370 selectors. There remained 25,696 acres unselected or reserved. The total amount of rent paid up to the same date was £1,442,703, the amount in arrear being £33,685. At the end of the year 1920 there were 2,370 selectors holding 2,143 agricultural farms, 256 unconditional selections, 489 perpetual lease selections, four prickly-pear selections, and one perpetual lease prickly-pear selection. In addition, land and improvements to the value of £90,184 had been sold at auction. At the end of the year 1921, 765,354 acres had been opened for selection, of which 742,284 acres had been selected by 2,393 selectors, and 23,070 remained unselected or reserved. Rent paid amounted to £1,514,258, and arrears were £27,772. At the end of 1921, there were 2,393 selectors holding 2,121 agricultural farms, 257 unconditional selections, 535 perpetual lease selections, four prickly-pear selections, and two perpetual lease prickly-pear selections. In addition, land and improvements to the value of £91,217 had been sold at auction.

(ii) *Group Settlement.* The Special Agricultural Selections Acts 1901 to 1905 were partly repealed by the Amending Act of 1909, which was in its turn repealed by the Land Act 1910. Under the last Act, land may be set apart for members of bodies of selectors who desire to settle in the same locality. The terms and conditions are similar to those in force for single selectors. Every group selection is subject to the condition of personal residence during the first five years of the term.

The Special Agricultural Selections Act 1905 provides that financial aid may be granted to all or any of the members of a body of selectors of agricultural homesteads. Advances may also be made to each selector for a value not exceeding £80 for the purpose of buying tools, rations, stock and poultry.

The portions opened for group settlement in 1920 numbered 783, and comprised a gross area of 178,303 acres. Up to the end of that year 606 portions, comprising 156,422 acres, valued at £213,482, had been applied for by members of the bodies of settlers for whom they were opened. This part of the Land Act is operated almost exclusively in the settlement of returned soldiers.

6. *South Australia.*—Under the provisions of the Crown Lands Acts the Commissioner may repurchase land for the purposes of closer settlement at a cost not exceeding £600,000 in any two years.

Reference is made on the next page to the provisions of the Irrigation and Reclaimed Lands Act 1908, as consolidated by the Act of 1914, regarding the settlement of reclaimed lands.

(i) *Disposal of Land.* The Crown Lands Act Further Amendment Acts enlarge the value of the blocks into which estates may be subdivided for closer settlement purposes from £2,000 to £4,000 unimproved value, or if the land is suitable for pastoral purposes only, to £5,000. The purchase-money, with interest thereon at a rate per annum as fixed, is payable in 128 half-yearly instalments.

For the first five years, improvements to the value of £3 for every £100 of the purchase-money must be yearly effected.

(ii) *Areas Acquired and Selected.* The following table shews the area of land acquired by the Government in South Australia for the purposes of closer settlement, and the manner in which the same has been disposed of under the provisions of the Crown Lands Acts for the years 1902 and 1916 to 1920 :—

SOUTH AUSTRALIA.—CLOSER SETTLEMENT, 1902 AND 1916 TO 1920.

Year.	Area of Lands Repurchased to 31st Dec.	Agreements with Covenants to Purchase.	Total Area Leased as Homestead Blocks.		Perpetual Leases.	Miscellaneous Leases.	Sold.	Remainder Unoccupied (including Roads).
			Right of Purchase.	Perpetual Lease.				
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1902	156,481		2,717	3,073	90,128	309	403	59,851
1916	724,963	487,355	733	1,513	52,138	164	66,607	121,453
1917	713,191	501,439	703	1,531	71,896	144	112,642	54,836
1918	743,191	497,032	703	1,531	54,826	144	124,728	64,227
1919	748,689	508,720	609	1,477	54,116	144	133,460	50,163
1920	761,235	515,805	556	1,476	53,648	144	153,522	36,134

During the financial year 1920–21, two properties of 22,578 acres were repurchased. The total area repurchased at 30th June, 1920, was 783,863 acres. Of this area 61,853 acres have been transferred to the Forestry Department and the Repatriation Department. The purchase-money was £2,628,073. Of the total area 675,925 acres had been allotted to 3,055 persons, the average area to each being 221 acres.

(iii) *Irrigation Areas.* Under the Irrigation and Reclaimed Lands Act 1914, special provisions are made for granting perpetual leases of reclaimed lands. The maximum area of irrigable or reclaimed land one person may hold in any irrigation area is 50 acres, but in the case of partnerships 50 acres may be held by each partner up to a maximum of 150 acres. Land above the irrigating channels is also offered to lessees of irrigable blocks for dry farming, grazing, etc. Each block is offered under perpetual lease, at a rent not less than a sum equivalent to 4 per cent. on the unimproved value of the land, plus the cost of reclaiming. In the case of swamp lands in the reclaimed lands, a drainage rate of from 5s. to 7s. 6d. per acre per annum is payable. On the irrigable land the water rate has been fixed at 30s. per acre per annum for the first four years, after which an amount will be charged sufficient to cover actual cost of supplying water, and the interest on pumping plants, channels, etc. A sliding scale covers both the rent and water rates for the first four years.

Under Part V. of the Act a fund has been constituted called the Lessees of Reclaimed Lands Loan Fund, consisting of money provided by Parliament to be expended by the Department in assisting settlers on the irrigation areas by fencing, clearing and grading their blocks, and constructing irrigation channels and drains and concrete tanks thereon. Such improvements will be undertaken up to a value not exceeding £15 per acre of the irrigable area in each lessee's block, but before the work can be commenced a deposit must be paid equal to 15 per cent. of the Department's estimated value of such improvements.

The total cost of the work, less amount of deposit paid, will be treated as a loan to the lessee, and will be repayable in twenty equal annual instalments, after the expiration of five years, or at any shorter period if so desired by the lessee, current rate of interest being charged.

Any lessee will be permitted to accept the contract for carrying out his own improvements, according to the specifications and estimate of the Department, up to the maximum amount per acre, as mentioned above.

(iv) *Village Settlement.* Out of the reserved lands, the Commissioner is directed to set apart for the purpose of village settlement such land as he shall consider fit (a) for horticultural purposes, to be termed "horticultural land"; (b) for agricultural purposes, to be termed "commonage land"; and (c) land whereon any irrigation works are situated. Land so set apart is to be divided as follows:—Horticultural lands into blocks of as nearly as practicable equal unimproved value, and of about ten acres in extent; and the commonage lands into one or more blocks of such area as the Commissioner may determine, and the lands so set apart in each case form the district of the association. No person may hold more than two blocks. Commonage lands may only be leased to the association on perpetual lease, and all unleased horticultural blocks are under the control of the association. Every member of each association must provide or contribute towards the maintenance and regulation of irrigation works, and the care and cultivation of the commonage lands.

As the Waikerie and Kingston districts were proclaimed irrigation areas under the Irrigation and Reclaimed Lands Acts 1908 and 1909, this would leave only the Lyryp Village Settlement, which is in a better position, both financially and as regards population, than the others.

(v) *Homestead Blocks.* Aboriginal reservations, except those at Point McLeay or Point Pearce, and other suitable lands may be offered as homestead blocks on perpetual lease or agreement to purchase. Each block must not exceed £100 in value, and residence by a member of the family for at least nine months of every year is compulsory.

There is now hardly any demand for homestead blocks, persons generally preferring small blocks of repurchased or Crown lands on ordinary conditions. The system appears to be of value only in centres of population where work can be obtained, and within a reasonable distance of a school.

(a) *Advances to Blockholders.* Advances up to £50 may be made by the Commissioner to any homestead blockholder who has complied with the conditions of his lease or agreement, to assist in erecting permanent buildings on the blocks, or other improvements. Advances must be repaid, with interest at 4 per cent. per annum, by twenty equal instalments, commencing twelve months from the date of advance. The Commissioner may, in case of hardship, extend the time of repayment, such deferred payments bearing interest at 5 per cent. per annum. The total amount advanced up to the 30th June, 1921, was £41,411, of which £40,401 had been repaid.

(b) *Particulars of Homestead Blocks.* The total number of leases and agreements of which purchase had been completed to the 31st December, 1920, was 2,531, comprising 38,077 acres, at a purchase price of £94,616, or an average of £2 9s. 8d. per acre, the average of each holding of which purchase was completed being 15 acres.

7. *Western Australia.*—Under the Agricultural Lands Purchase Act 1909, which repealed and consolidated the Agricultural Lands Purchase Acts 1896 to 1904, sums not exceeding in the aggregate £400,000 may be expended on the repurchase of Crown lands near the railways, suitable for immediate cultivation.

(i) *Acquisition of Land by the Government.* For the purpose of carrying out the provisions of the Acts, a Land Purchase Board has been constituted. Advised by the report of the Board, the Minister, with the approval of the Governor, may make a contract for the acquisition of the land by surrender at the price fixed by the Board, or at any lesser price.

(ii) *Sale of Repurchased Land.* After reservation of part of the repurchased land for public purposes, the remainder is thrown open for selection. The maximum quantity held by one person must not exceed 1,000 acres, or in special cases 2,000 acres.

(iii) *Conditions of Sale to Selectors.* The maximum selling price of any repurchased land is equal to 105 per cent. of the actual cost of the land plus the cost of any improvements made upon it. A lease for twenty to thirty years is issued at a rent the half-yearly instalments of which are to be at the rate of £3 17s. 9d. for each £100 of the selling price. Improvements must be made to the value of one-fifth of the purchase money every two years of the first ten years of the lease. One-half of the land must be fenced within the first five years and the whole within ten years. Loans may be granted to selectors under the provisions of the Agricultural Bank Acts.

(iv) *Areas Acquired and Selected.* The transactions conducted under the provisions of the Agricultural Lands Purchase Acts are shewn for 1901 and for each year from 1916 to 1921 in the subjoined table :—

WESTERN AUSTRALIA.—CLOSER SETTLEMENT, 1901 AND 1916 TO 1921.

(a) Year.	Total Area Acquired.	Total Purchase- money.	Roads, Reserves, etc.	Total Area made available for Selection.	Area Selected during the Year.	Total Area occupied to Date.	Balance of Area available for Selection.	Total Revenue received to Date.
	Acres.	£	Acres.	Acres.	Acres.	Acres.	Acres.	£
1901 ..	46,624	52,764	1,459	45,165	4,295	37,235	7,930	14,451
1915-16	446,804	421,373	15,825	430,979	342	271,212	159,737	268,232
1916-17	446,804	421,373	15,825	430,979	77	269,618	161,331	295,740
1917-18	446,804	421,373	15,825	430,979	2,813	267,008	163,971	319,759
1918-19	446,804	421,373	15,825	430,979	38,590	304,137	126,002	3 3,767
1919-20	446,804	421,373	15,825	430,979	40,653	336,707	94,272	363,814
1920-21	446,804	421,373	15,825	430,979	8,979	343,237	87,742	382,202

(a) The figures for 1901 are up to 31st December. For subsequent years they are given as up to 30th June.

On the 30th June, 1919, the total expenditure, exclusive of purchase money but including interest, was £192,901, which left a balance of £150,866. At the same date the amount invested as sinking fund was £143,028.

(v) *Workingmen's Blocks.* Any person not already holding land within the State is entitled to obtain a lease of lands which have been surveyed and thrown open for selection as workingmen's blocks. The maximum area that may be selected by one person is, if within any town or goldfield, half an acre, or five acres elsewhere. The price is not less than twenty shillings per acre, payable in ten years by half-yearly instalments. Residence and improvement conditions must be fulfilled. At the expiration of the lease, or at any time after five years from the date of the commencement of the lease, upon compliance with all conditions, and upon payment of the full purchase money and fee, a Crown grant will be issued. No person who has once held a workingmen's block is allowed to select another, except under very special circumstances.

The following table shews the number and area of accepted applications for workingmen's blocks during each year, as well as the total number and area in existence at the end of the year 1901 and for each year from 1916 to 1921. :—

**WESTERN AUSTRALIA.—PARTICULARS OF WORKINGMEN'S BLOCKS,
1901 AND 1916 TO 1921.**

Year	..	1901.	1916.(a)	1917.(a)	1918.(a)	1919.(a)	1920.(a)	1921.(a)
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NUMBER AND AREA OF ACCEPTED APPLICATIONS DURING YEAR.

Number ..	2	1	Nil	Nil	Nil	1	2
Area in Acres	6	1	Nil	Nil	Nil	5	10

NUMBER AND AREA OF BLOCKS OCCUPIED AT END OF YEAR.

Number ..	7	176	134	108	83	68	27
Area in Acres	31	565	510	482	451	425	364

(a) For financial year ended 30th June.

During the years 1907 to 1911 residential blocks on the goldfields were made available as workingmen's blocks, instead of under residential lease.

8. *Tasmania*.—The principles of closer settlement were not introduced into Tasmania until the Closer Settlement Act of 1906 was passed. Under this Act, which was amended in 1908 and 1911, and consolidated in 1913, power is given to the Minister for Lands, on the recommendation of the Closer Settlement Board, to purchase compulsorily or by agreement private land in any part of Tasmania for the purpose of closer settlement, and also to deal with and dispose of any unoccupied Crown land for the same purpose.

(i) *Disposal of Land*. Lands so brought under the Act are subdivided into farm allotments of a suitable size—not exceeding £4,000 in value—and are disposed of by way of lease for 99 years. The rental is determined by the Board at a rate not exceeding 5 per cent. per annum on the capital value of the land. Any lessee who has fulfilled the conditions under the Act may, after the expiration of ten years of the term of the lease, purchase the land leased to him. The Minister has power to dispose of the fee simple of such land in any estate which is considered unsuitable for closer settlement.

A lessee must improve his holding to a value equal to $2\frac{1}{2}$ per cent. on the capital value of the land in each of the first ten years of the term of his lease, and he must, within two years of the date of the lease, personally reside on his allotment during at least eight months of each of the following nine years. Provision is made for reserving a proportion of the allotments thrown open, and leasing the same, under special terms and conditions, to bona fide immigrants.

(ii) *Advances to Settlers*. The total advance by the Government in aid of the cost of effecting improvements to any one lessee must not exceed pound for pound of the sum expended by him in building and other improvements. Such advances must be repaid, together with interest at 5 per cent., in equal half-yearly instalments within a period not exceeding 21 years.

(iii) *Special Sales*. The fee simple of land acquired may be disposed of by sale on the recommendation of the Board as sites for churches, public halls, dairy factories, fruit-preserving factories, mills, or creameries. The area sold may not exceed one acre in the case of a church or public hall, or five acres in other cases.

(iv) *Areas Acquired and Selected*. Up to the 30th June, 1920, twenty-seven areas had been opened up for closer settlement. Particulars for ten years are given in the following statement:—

TASMANIA.—CLOSER SETTLEMENT, 1911 TO 1920.

Year.	Number of Farms made Available.	Number of Farms Allotted.	Area of Farms Allotted.	Rental of Farms Allotted.	Total Area Purchased.
			Acres.	£	Acres.
1911	37	36	4,965	168	5,143
1912	11	7	3,912	563	6,147
1913	18	21	5,652	1,134	3,745
1914	24	17	8,975	1,959	10,756
1915	36	53	15,153	4,393	12,930
1916	5	11	1,729	476	157
1917	5	15	3,900	993	1,939
1918 .. ..	..	8	2,366	205	Nil
1919 .. ..	..	..	..	Nil	Nil
1920	5	5	756	492	1,647

The total purchase money paid by the Government up to the 30th June, 1920, was £296,897.

9. *Northern Territory*.—In the Northern Territory, a Board is constituted to deal with assistance to settlers. In view of the unsuccessful attempts to establish Tropical Agricultural Settlement, the Board at present only grants assistance in exceptional cases. Preference is given to returned soldier applicants for pastoral lands, other things being equal. No other concession is granted by the Classification Board, but the Repatriation Department renders assistance for the purchase of stock, etc.

§ 9. Occupation of Crown Lands under Leases and Licenses Issued by Mines Departments.

1. **Introduction.**—Leases and licenses for the occupation of Crown lands for mining and other purposes are issued by the Mines Departments in all the States. Such leases and licenses may be issued with respect to all Crown lands, whether otherwise unoccupied or whether occupied also under leases and licenses issued by the Lands Departments. Certain Crown lands, such as reserves, etc., are, however, subject to special conditions.

(i) *Mining on Private Lands.* Certain of the Crown lands of the several States have been alienated from time to time, subject to various reservations in respect of gold and other minerals which might afterwards be found therein. Other lands have been alienated without such reservation, but as the mineral gold does not pass from the Crown unless by express conveyance, it has remained the property of the State on all alienated lands. All lands alienated or in process of alienation are open to mining for gold; but to mining for other minerals, those lands only are open, in respect of which the rights are reserved in the grants. There are, however, generally certain reservations, such as those with reference to town or village lands and lands which have been built on or are used for special purposes. The working of minerals on private lands is regulated in the several States either by special Acts or by special provisions of the Acts relating to mining.

(ii) *Leases and Licenses Issued and Total Areas of Crown Lands Occupied.* The following tables shew the total areas of Crown lands for which leases and licenses for mining purposes were issued in each State during 1901, and for each year from 1916 to 1921 inclusive, and also the total areas of Crown lands occupied for mining purposes at the end of each year during the same period:—

CROWN LANDS, LEASES AND LICENSES FOR MINING PURPOSES, 1901 AND 1916 TO 1921.

Particulars.	N.S.W.	Victoria(a)	Q'land.(b)	S. Aust.(c)	W.Aust.(c)	Tas.(c)	C'wealth.
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AREAS FOR WHICH LEASES AND LICENSES ISSUED.

	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1901	50,349	..	55,698	93,985	37,593	18,125	(d)255,750
1916	40,616	7,173	31,106	557,911	23,448	9,306	669,560
1917	72,334	7,618	15,842	268,749	23,160	7,515	400,218
1918	13,329	5,563	18,888	132,623	26,070	5,773	202,246
1919	17,959	7,032	24,371	58,796	69,950	7,685	185,793
1920	39,306	7,032	39,398	578,094	74,699	9,790	748,319
1921	28,745	10,696	97,700	573,757	93,033	11,628	815,559

TOTAL AREA OCCUPIED AT END OF YEAR.

	134,209	..	124,182	14,140	66,682	50,362	(d)389,575
1901	134,209	..	124,182	14,140	66,682	50,362	(d)389,575
1916	224,593	97,532	218,312	670,890	138,157	53,462	1,402,946
1917	231,981	88,599	221,647	274,003	113,656	54,391	984,277
1918	225,134	76,799	259,395	171,170	114,377	46,600	893,475
1919	223,884	69,165	313,833	144,347	145,307	46,491	949,027
1920	230,560	48,561	327,880	603,298	170,591	46,380	1,427,270
1921	268,851	..	412,368	642,570	161,319	52,476	d1,537,584

(a) Including private lands, leases, and water right licenses only. (b) Exclusive of lands held under miners' rights only. (c) Exclusive of miners' rights. (d) Excluding Victoria.

2. **New South Wales.**—Under the provisions of the Mining Act 1906 and the regulations made thereunder, Crown lands may be occupied for mining or other purposes by virtue of (i) miners' rights; (ii) business licenses; (iii) authorities to prospect; or (iv) leases.

(i) *Particulars of Leases and Licenses Issued, 1921.* The following table gives particulars of leases and licenses of Crown lands issued by the Mines Department during the year 1921 :—

NEW SOUTH WALES.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT DURING YEAR 1921.

Particulars.	Act under which Issued.		Purpose for which Issued.		Area.
					Acres.
<i>Leases—</i>	Mining Act 1906	.. ..	To mine for—	Gold	1,686
	" "	.. ..		Minerals other than coal	12,234
	" "	.. ..		Coal	9,525
	Mining Act 1906 (Dredging)	.. ..		Leases (mining purposes)	379
	" "	.. ..		Gold	1,434
	" "	.. ..		Minerals other than gold	
<i>Other forms of occupancy—</i>	Mining Act 1906	.. ..	Authorities to prospect		3,487
Total ..					28,745

(ii) *Leases and Licenses Issued and Areas Occupied.* The following table gives particulars of the areas of Crown lands for which leases and licenses were issued by the Mines Department during each year, and of the total areas of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1916 to 1921 inclusive :—

NEW SOUTH WALES.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1901 AND 1916 TO 1921.

Purposes for which Issued or Occupied.	1901.	1916.	1917.	1918.	1919.	1920.	1921.
LEASES AND LICENSES ISSUED.							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining	2,272	2,558	1,310	2,418	3,526	2,168	3,120
Mining for other minerals	47,990	13,509	12,839	9,676	12,877	22,535	21,759
Authorities to prospect ..	..	24,036	57,978	1,076	1,148	14,216	3,487
Other purposes	87	513	207	159	408	387	379
Total ..	50,349	40,616	72,334	13,329	17,959	39,306	28,745

TOTAL AREAS OCCUPIED.							
	6,942	10,767	9,422	9,356	9,262	9,953	9,061
Gold mining	126,885	207,595	216,399	209,577	214,301	229,503	248,568
Mining for other minerals	..	218	40	10	706	58	5,224
Authorities to prospect ..	382	6,013	6,120	6,191	5,615	5,939	5,998
Other purposes							
Total ..	134,209	224,593	231,981	225,134	229,884	245,459	268,851

3. *Victoria.*—The occupation of Crown lands for mining and auxiliary purposes in this State is regulated by the Mines Act 1915. The Department of Mines is authorised to issue mining leases (gold-mining, mineral, and dredging), also licenses (searching, tailings, and water-right), while miners' rights and business licenses are issued by the Treasury Department, and claims and residence areas are registered by local mining registrars.

Licenses of auriferous lands not for mining purposes may be issued by the Lands Department.

Leases and Licenses Issued and Areas Occupied for Mining. Particulars of leases and licenses for mining purposes of Crown lands alone are not available, the official returns including also private lands. During the year 1921 the number of mining leases, licenses, etc., issued was 158, covering an area of 10,696 acres; the rent, fees, &c., received thereon amounted to £1,092. The total area of Crown and private land, including water licenses, occupied at the end of 1920 was 48,561 acres.

4. **Queensland.**—The occupation of Crown lands for mining purposes in this State is regulated by the Mining Acts 1898 to 1920, the Mining for Coal and Mineral Oil Act, The Petroleum Act, and the Miners' Homestead Perpetual Leases Act. Under these Acts the Department of Mines is authorised to issue (i) miners' rights; (ii) mining leases; (iii) mining leases and licenses for coal and mineral oil; and (iv) miners' homestead perpetual leases.

The Act under which Miners' Homestead Leases were granted has been amended, and the title is now "Miners' Homestead Perpetual Leases." Most of the old provisions remain, but rent is now perpetual, and is based on the value of the land:—If sold by auction 3 per cent. of the purchase price, otherwise $1\frac{1}{2}$ per cent. of the capital value of the land. Rental is also subject to re-appraisement every ten years.

Mineral leases for coal may be granted for a term of 21 years at an annual rent of one shilling an acre, together with a royalty, according to the distance the lease is from a seaport or other place of delivery, of fourpence to sixpence per ton of coal raised during the first five years of the lease, and of eightpence to one shilling per ton during the remainder of the term. A lease for mineral oil with a maximum area of 320 acres may be granted for a term of 21 years at an annual rental of one shilling per acre, with a royalty of 5 per cent. of the value of all crude oil produced. Licenses to occupy not more than 2,560 acres may be granted to any person desiring to prospect Crown lands for coal and mineral oil upon payment of one penny for every acre comprised in the application.

Licenses to prospect for petroleum may be granted for areas up to 2,000 acres at a rental of one penny per acre, for a period of five years, and the licensee may during the currency of his license take portion of the area (60 acres) as a mineral lease at a peppercorn rental and a royalty of $12\frac{1}{2}$ per cent. of the gross value of all petroleum obtained from such lease, and he is also entitled while he is occupying and working his lease to $2\frac{1}{2}$ per cent. of the value of all petroleum which may be obtained from the balance of the land comprised in his original license.

Mineral leases up to 30 acres may be granted to mine for petroleum at a peppercorn rental and royalty of $12\frac{1}{2}$ per cent. of gross value of oil obtained.

The "Mining on Private Land Act 1909" authorises the granting of leases, &c., on and under private land, under conditions as to compensation, etc.

(i) *Particulars of Leases and Licenses Issued, 1920 and 1921.* The subjoined table gives particulars of the leases and licenses of Crown lands issued for mining purposes during the years 1920 and 1921:—

QUEENSLAND.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT DURING YEARS 1920 AND 1921.

Year.	Lease or License.	Mining Leases.				Miners' Homestead Leases.	Coal Prospecting Licenses.	Miscellaneous Holdings.
		Purpose for which issued.	To mine for gold.	To mine for minerals other than gold.	Tramways.	Buildings and machinery.	Residence, business, etc.	To prospect for coal.
1920	Area in acres	246	1,205	..	..	31,006	6,941	(a)5,000
1921	Area in acres	61	953	..	..	33,469	63,217	(a)5,000

(a) Approximate.

(ii) *Particulars of Areas Occupied.* The following table shews the areas for which leases and licenses of Crown lands were issued during each year, and the total area occupied at the end of the year 1901 and from 1916 to 1921 inclusive:—

QUEENSLAND.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT,
1901 AND 1916 TO 1921.

Particulars.	1901.	1916.	1917.	1918.	1919.	1920.	1921.
LEASES AND LICENSES ISSUED DURING YEAR.(a)							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining	3,581	102	479	254	46	246	61
Mining for other minerals	7,142	2,087	1,372	1,710	864	1,205	953
Other purposes	44,975	28,917	13,991	16,924	23,461	37,947	96,686
Total	55,698	31,106	15,842	18,888	24,371	39,398	97,700

TOTAL AREA OCCUPIED AT END OF YEAR.(a)

Gold mining	11,296	3,508	2,882	2,726	2,136	2,032	1,620
Mining for other minerals	23,113	39,799	39,754	42,193	32,860	31,908	33,370
Other purposes	89,773	175,005	179,011	214,476	278,837	293,940	377,378
Total	124,182	218,312	221,647	259,395	313,833	327,880	412,368

(a) Exclusive of lands held under miners' rights only.

5. *South Australia.*—In this State leases and licenses for mining purposes are issued by the Department of Mines under the authority of the Mining Act 1893, and amending Acts. Under these Acts mining and prospecting are permitted in virtue of (i) miners' rights; (ii) mining leases; (iii) coal or oil leases; and (iv) miscellaneous leases, and in addition occupation of Crown lands is permitted by virtue of (v) business claims, and (vi) occupation licenses.

(i) *Particulars of Leases and Licenses.* The following table gives particulars of leases and licenses of Crown lands issued by the Mines Department during the years 1920 and 1921:—

SOUTH AUSTRALIA.—LEASES AND LICENSES ISSUED BY THE MINES
DEPARTMENT DURING YEARS 1920 AND 1921.

Particulars.	Act under which Issued.	Purpose for which Issued.	Area.	
			1920.	1921.
<i>Leases</i>	Mining Act 1893	To mine for—	Acres.	Acres.
<i>Mineral claims</i> ..		Gold and other metals and minerals	19,892	5,747
<i>Licenses</i>	Mining Act Amendment Act 1900	" " " "	176,758	52,164
		To search for precious stones, mineral phosphates, oil, rare metals, minerals, and earths, the mining for which has not proved payable in any portion of the State		
<i>Occupation licenses</i>	Mining Act 1893	Occupation by miners	381,440	515,840
Total .. ..	.. ..	.. ..	578,094	573,756

(ii) *Leases and Licenses Issued and Areas Occupied.* The following table gives particulars of the areas of Crown lands for which leases and licenses were issued by the Mines Department during each year, and of the total area of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1916 to 1921 inclusive :—

SOUTH AUSTRALIA.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1901 AND 1916 TO 1921.

Particulars.	1901.	1916.	1917.	1918.	1919.	1920.	1921.
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LEASES AND LICENSES ISSUED. (a)

	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ..	1,377	83	215	54	180	37	130
Mining for other minerals ..	92,587	557,819	268,527	132,562	58,614½	578,053¼	573,621½
Other purposes ..	21	9	7	7	2	3½	5
Total ..	93,985	557,911	268,749	132,623	58,796½	578,093¾	573,756½

TOTAL AREAS OCCUPIED. (a)

Gold mining ..	14,140	1,505	1,509	1,240	967	758	768
Mining for other minerals ..	..	669,281	272,385	169,827	143,278½	602,438	641,701
Other purposes ..	..	104	109	103	101½	101½	101
Total ..	14,140	670,890	274,003	171,170	144,346¾	603,297½	642,570

(a) Exclusive of miners' rights.

The following table shews the total area occupied (exclusive of miners' rights) at the end of the years 1920 and 1921, classified according to the nature of the holding :—

SOUTH AUSTRALIA.—TOTAL AREA UNDER MINING ACTS, 1920 and 1921.

Nature of Holding.	1920.		1921.	
	Number.	Area.	Number.	Area.
		Acres.		Acres.
Mineral leases ..	294	13,545	281	13,032
Gold leases ..	41	748	41	765
Miscellaneous leases ..	105	22,692	104	23,010
Mineral claims ..	401	15,796	211	7,894
Occupation licenses ..	203	101½	202	101
Search licenses ..	192	381,440	237	515,840
Coal and oil claims ..	238	152,320	97	62,080
Gold claims ..	3	10	1	3
Coal and oil leases ..	26	16,640	31	19,840
Precious stones claims ..	11	5	10	5
Total ..	1,514	603,297½	1,215	642,570

6. *Western Australia.*—The issue of leases and licenses by the Mines Department is regulated by the Mining Act 1904. Under this Act Crown lands may be occupied by virtue of (i) miners' rights; (ii) mining leases; and (iii) miners' homestead leases.

(i) *Particulars of Leases and Licenses Issued, 1921.* The following table gives particulars of mining leases and licenses of Crown lands issued during 1921 :—

WESTERN AUSTRALIA.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1921. (a)

Particulars.	Gold Mining.	Minerals other than Gold.	Miners' Homesteads.	Miscellaneous.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.
Leases ..	4,551	1,686	2,032	5	8,324
Licenses ..	12,740	71,875	..	94	84,709

(a) Exclusive of miners' rights.

(ii) *Particulars of Areas Occupied.* The following table shews the areas for which leases and licenses of Crown lands were issued during each year, and the total area occupied at the end of the year 1901 and from 1916 to 1921 inclusive :—

WESTERN AUSTRALIA.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1901 AND 1916 TO 1921.

Particulars.	1901.	1916.	1917.	1918.	1919.	1920.	1921.
LEASES AND LICENSES ISSUED DURING YEAR. (a)							
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Gold mining ..	17,454	14,954	12,489	12,362	16,790	36,067	17,291
Mining for other minerals ..	19,281	6,647	14,819	12,981	52,661	37,599	73,561
Other purposes ..	858	1,847	852	727	499	1,033	2,181
Total ..	37,593	23,448	28,160	26,070	69,950	74,699	93,033

TOTAL AREA OCCUPIED AT END OF YEAR. (a)

Gold mining ..	40,525	24,391	22,569	19,184	22,487	36,070	21,600
Mining for other minerals ..	14,091	69,405	48,778	49,952	84,361	96,036	101,322
Other purposes ..	12,066	44,361	42,309	45,241	38,439	38,485	38,397
Total ..	66,682	138,157	113,656	114,377	145,307	170,591	161,319

(a) Exclusive of miners' rights.

7. *Tasmania.*—Under the provisions of the Mining Act 1917, Crown lands in this State may be occupied for mining and auxiliary purposes by virtue of (i) prospectors' licenses; (ii) miners' rights; (iii) mining leases; and (iv) miscellaneous licenses. Business and residence licenses within mining areas may be issued by the Lands Department. Provision was made in the Act for the issue of licenses to search for coal or oil, the maximum area of a holding, which is granted for two years, being 3,200 acres; and a large area of land has been applied for under this provision.

(i) *Particulars of Leases and Licenses Issued, 1921.* The following table shews particulars of leases and licenses of Crown lands, exclusive of prospectors' licenses and miners' rights, issued by the Mines Department during the year 1921 :—

TASMANIA.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT DURING 1921. (a)

Mineral.	1921.		Mineral.	1921.	
	No.	Area.		No.	Area.
		Acres.			Acres.
Asbestos	1	80	Silver-lead	6	335
Clay	1	4	Tin	108	2,148
Coal	20	3,740	Dredging claims	3	87
Copper	5	260	Machinery sites	2	7
Gold	39	530	Mining easements	8	45
Iron	12	620	Water rights	46	91
Limestone	3	460	Dam sites	4	93
Minerals, other	24	2,925			
Plumbago	1	8			
Scheelite	3	184			
Shale	1	11	Total	287	11,628

(a) Exclusive of prospectors' licenses and miners' rights, which are issued by officers in different districts throughout the State, and as to which particulars are not available.

(ii) *Leases and Licenses Issued and Areas Occupied.* The following table gives particulars of the areas of Crown lands for which leases and licenses (exclusive of prospectors' licenses and miners' rights) were issued during each year, and of the total area of Crown lands occupied under such leases and licenses at the end of the year 1901 and from 1915 to 1921 inclusive :—

TASMANIA.—LEASES AND LICENSES ISSUED BY MINES DEPARTMENT, 1901 AND 1915 TO 1921. (a)

Particulars.	1901.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
LEASES AND LICENSES ISSUED. (a)								
Gold mining ..	Acres. 1,067	Acres. 520	Acres. 684	Acres. 784	Acres. 294	Acres. 205	Acres. 1,195	Acres. 530
Mining for other minerals ..	17,058	13,211	8,203	6,630	5,459	7,380	8,419	10,862
Licenses to search for coal or oil	..	..	..	..	..	..	..	122,611
Other purposes	..	188	419	101	20	100	176	236
Total	18,125	13,919	9,306	7,515	5,773	7,685	9,790	134,239
TOTAL AREAS OCCUPIED. (a)								
Gold mining ..	3,394	2,026	1,692	1,761	657	537	1,403	1,894
Mining for other minerals ..	46,968	48,330	48,637	49,742	43,063	43,050	42,120	47,562
Licenses to search for coal or oil	..	..	..	..	..	..	..	117,031
Other purposes	..	2,704	3,133	2,888	2,880	2,904	2,857	3,020
Total ..	50,362	53,060	53,462	54,391	46,600	46,491	46,380	169,507

(a) See note to preceding table.

8. *Northern Territory.*—The granting of leases and licenses for mining purposes in the Northern Territory is under the control of the Administrator. The area of land held under Mining Regulations in the Northern Territory has been previously referred to in § 7 of this chapter (page 173).

§ 10. Resumption by Crown of Alienated Lands.

1. *General.*—Under various Acts, alienated lands may be compulsorily resumed by the Crown in the several States for certain purposes, generally connected with works of a public nature. Resumptions for closer settlement purposes have already been referred to (see § 8 above). In most of the States there are Lands Clauses or similar Acts providing the machinery, and indicating the procedure to be adopted in assessing the compensation to be paid by the Crown to private owners in cases where the parties have failed to agree as to the amount to be paid. The provisions of these Acts are generally incorporated in the special Acts specifying the purposes for which alienated lands may be resumed. Lands leased for pastoral purposes may generally be resumed by the Crown on short notice. The lessee is ordinarily entitled to compensation for land resumed, for loss or depreciation in value of the lease caused by such resumption, and for improvements.

(a) *Commonwealth Territory.* Lands may be resumed under the Lands Acquisition Act 1906–18.

(b) *New South Wales.* Alienated lands may be recovered by the Crown for authorized works and certain public purposes under the provisions of the Public Works Act 1912, and in other cases may be acquired by the Crown by purchase, gift, or surrender under Executive authority. Alienated lands required for public roads may be resumed under the Public Roads Act 1902, and if containing gold may be resumed for mining under section 72 of the Mining Act 1906. Lands dedicated or granted by the Crown for public purposes may be resumed under Section 25 of the Crown Lands Consolidation Act 1913, and section 1 of the Public Trusts Act 1897. Surrender and exchange of lands alienated or in process of alienation may be carried out under section 195 of the Crown Lands Consolidation Act 1913.

(c) *Victoria.* In Victoria, lands may be resumed in accordance with the provisions of the Lands Compensation Act 1915, the Public Works Act 1915, the Railways Lands Acquisition Act 1915–1918, the Land Act 1915, the Local Government Act 1915, the Water Act 1915, and the Forests Act 1915.

(d) *Queensland.* In this State, alienated lands may be resumed under the provisions of the Public Works Land Resumption Acts 1906 to 1917 for any of the purposes specified in section 4 of that Act.

(e) *South Australia.* In this State the principal Acts under which land is repurchased for public works are the Railway Commissioners Act 1887, the Water Conservation Acts 1886, 1889, and 1900, the Waterworks Act 1882, the Sewers Act 1878, Land for Public Purposes Act 1914, and the Lands Clauses Consolidation Act 1847 to 1918.

(f) *Western Australia.* In Western Australia private lands may be resumed under the provisions of the Land Act 1898, the Roads Act 1911, Agricultural Lands Purchase Act, and the Public Works Act 1902.

(g) *Tasmania.* Alienated lands in Tasmania may be resumed under the provisions of the Land Vesting Act 1894, by agreement; under the Public Works and Crown Lands Acts, by arbitration; and under the Lands Resumption Act 1910, compulsorily.

(h) *Northern Territory.* The Lands Acquisition Ordinance 1911 provides for resumption.

2. *Areas Resumed.*—Particulars of land resumed by the States for public works, etc., are not available.

§ 11. Alienation and Occupation of Crown Lands in the Several States.

1. *Introduction.*—The tables given in the previous parts of this section shew separately the areas alienated, in process of alienation, and occupied under various tenures in the several States. The tables given below shew collectively the general condition of the public estate in each State, having regard to (a) the area alienated absolutely, which includes free grants, sales, and conditional purchases for which grants have been issued, the conditions having been complied with; (b) the area in process of alienation, comprising holdings for which the fee simple has not yet been alienated, but which are in process of sale under systems of deferred payments; (c) the area occupied under all

descriptions of leases and licenses : and (d) the area unoccupied, which, ordinarily, includes roads, permanent reserves, forests, etc. In some cases, however, lands which are permanently reserved from alienation are occupied under leases and licenses, so that in such cases the areas reserved are comprised in class (c) and not in class (d). Particulars of leases and licenses of reserved areas, as distinguished from leases and licenses of other lands, are not available. It should be observed that in many cases lands occupied under leases or licenses for pastoral purposes are held on short tenures only, and could thus be made available for settlement practically whenever required.

2. New South Wales.—The total area of the State of New South Wales (exclusive of Commonwealth Territory) is 198,036,500 acres, of which on the 30th June, 1921, 42,866,983 acres, or about one-fifth, were alienated absolutely ; 20,667,746 acres, or about one-tenth, were in process of alienation ; 115,861,222 acres, or upwards of three-fifths, were occupied under Lands Department, Western Land Board, or Mines Department leases and licenses. The next table shews the areas alienated, in process of alienation, held under leases and licenses, and unoccupied, in 1901 and from 1916-17 to 1920-1921.

During the year 1920-21, a total area of 941,851 acres became available for Crown leases, homestead farms, suburban holdings, additional holdings, etc. Of this area, 2,699 acres were made available for irrigation farms and allotments, and 27,295 acres were acquired under the Closer Settlement Promotion Act. In addition, 645,518 acres were made available for soldiers' settlement.

**NEW SOUTH WALES.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1916 TO 1921.(a)**

Particulars.	Area in Acres.					
	1901.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
1. Alienated.						
Granted and sold by private tender and public auction, at prices ranging from five to twenty shillings per acre, prior to 1862	7,146,579	7,146,579	7,146,579	7,146,579	7,146,579	7,146,579
Sold by auction and other sales, 1862 to date	14,638,888	14,917,287	14,922,516	14,933,719	14,849,209	15,182,649
Conditionally sold, 1862 to date	4,212,189	16,929,786	17,318,124	17,887,903	18,564,288	19,228,810
Granted under Volunteer Land Regulations, 1867 to date	168,545	172,198	172,198	172,198	172,198	172,198
Granted for public and religious purposes	241,968	239,339	239,840	240,222	240,915	241,417
Homestead selections and grants	35,385	1,256,036	1,055,915	985,914	912,573	895,330
Total area alienated	26,443,554	40,661,225	40,855,172	41,366,535	41,885,762	42,866,983
2. In Process of Alienation.						
Under system of deferred payments	20,044,703	18,693,915	19,225,824	19,435,807	19,365,856	18,672,521
Under system of homestead selections (including leases converted, but excluding grants issued)	1,550,985	(b)	(b)	(b)	(b)	(b)
Closer settlement purchases .. .. .	..	1,153,822	1,244,203	1,288,407	1,510,568	1,995,225
Total area in process of alienation	21,595,688	19,847,737	20,470,027	20,724,214	20,876,424	20,667,746
3. Held under Leases and Licenses.						
Total under Lands Department and Western Land Board	126,921,161	117,015,359	116,159,073	115,110,607	115,631,338	115,246,873
Mineral and auriferous leases and licenses (Mines Department)	134,209	224,593	231,981	225,134	229,884	268,851
Total leases under all Government Departments	127,055,370	117,239,952	116,391,054	115,335,741	115,861,222	115,515,724
4. Unoccupied	23,548,468	20,287,586	20,320,247	20,610,010	19,413,092	18,986,047

Area of State (exclusive of Commonwealth Territory)—198,036,500 acres.

(a) The figures for 1901 are up to the 31st December, while for the other years given they are up to the 30th June. (b) Now included under Homestead grants.

3. **Victoria.**—The total area of the State of Victoria is 56,245,760 acres, of which 24,793,053 acres, or about three-eighths, had been alienated absolutely up to the end of the year 1920; 8,746,102 acres were in process of alienation under deferred payments and Closer Settlement Schemes; and 9,991,558 acres were occupied under leases and licenses (exclusive of leases and licenses held under the Mines Department). The following table shews the areas alienated and in process of alienation, together with the areas reserved, leased, and available for occupation at the end of the year 1901 and from 1916 to 1920:—

**VICTORIA.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1916 TO 1920.**

Particulars.	Area in Acres.					
	1901.	1916.	1917.	1918.	1919.	1920.
1. <i>Alienated</i>	20,066,875	24,345,425	24,427,467	24,503,531	24,605,825	24,793,053
2. <i>In Process of Alienation</i> —						
Exclusive of Mallee, etc. ..	3,587,668	2,069,321	2,059,101	2,051,422	2,022,373	1,937,933
Mallee Lands ..	87,606	5,682,094	5,500,708	5,511,340	6,259,742	6,274,011
Under Closer Settlement Acts ..	..	507,500	518,068	527,237	514,128	520,003
Village Settlements ..	55,077	19,989	18,175	16,888	15,235	14,155
Total	3,730,351	8,278,904	8,096,052	8,106,887	8,811,478	8,746,102
3. <i>Leases and Licenses Held</i> —						
Under Lands Department ..	17,110,709	12,433,959	12,383,810	10,649,247	10,944,854	9,991,558
Under Mines Department(a) ..	..	..	..	..	..	..
4. <i>Unoccupied Crown Lands</i> (b) ..	15,337,825	11,187,472	11,338,431	12,986,095	11,883,603	12,715,047

Total area of State—56,245,760 acres.

(a) Not available. (b) Including leases and licenses held under the Mines Department, which are not available.

Crown lands in Victoria include roads, 1,757,040 acres; water reserves, 318,013 acres; agricultural colleges, etc., 85,879 acres; State forests and timber reserves (under Forest Act), 4,129,000 acres; State forests and timber reserves under Land Acts, 303,600 acres; reserves in the Mallee, 397,881 acres; unsold land in towns, etc., 1,776,865 acres; and other reserves, 302,000 acres.

4. **Queensland.**—The total area of this State is 429,120,000 acres, of which, on the 31st December, 1920, 17,022,300 acres, or about one twenty-fifth, were alienated absolutely; 8,659,280 acres, or about one forty-ninth, were in process of alienation; 325,853,774 acres, or about three-quarters, were occupied under leases and licenses; roads, reserves, etc., occupied 16,679,253 acres, the remaining 60,905,393 acres being unoccupied. From 1901 to 1920 the area alienated absolutely increased by 3,488,832 acres, or 25.8 per cent., and the area in process of alienation by 5,867,616 acres, or 210 per cent.

The following table shews the areas alienated absolutely, the areas in process of alienation, and the areas held under various forms of lease and license at the end of the year 1901 and from 1916 to 1920 :—

**QUEENSLAND.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1916 TO 1920.**

Particulars.	Area in Acres.					
	1901.	1916.	1917.	1918.	1919.	1920.
1. Alienated Absolutely.						
By Purchase	13,462,304	16,483,906	16,583,135	16,684,981	16,806,983	16,935,558
Without Payment	71,164	86,684	86,702	86,736	86,736	86,742
Total	13,533,468	16,570,590	16,669,837	16,771,717	16,893,719	17,022,300
2. In Process of Alienation	2,791,664	10,566,829	10,215,839	9,763,261	9,064,089	8,659,280
3. Occupied under Leases and Licenses.						
Runs in Settled Districts ..	176,000	215,950,840	211,581,200	212,439,720	211,030,440	209,248,960
„ Unsettled Districts ..	222,553,760					
Occupation Licences ..	35,103,600	44,619,240	40,929,360	40,694,600	36,590,960	33,830,400
Grazing Farms and Homesteads	21,793,242	64,773,601	67,292,732	71,091,155	76,437,422	79,397,073
Scrub Selections ..	272,946	206,155	206,154	206,153	166,899	112,137
Leases Special Purposes ..	249	173,200	186,592	202,364	210,201	218,563
Under Mines Department ..	124,182	238,311	241,647	279,396	333,834	342,880
Perpetual Lease Selections ..	..	228,876	527,133	954,623	2,005,337	2,694,626
Auction Perpetual Leases ..	..	2,479	5,278	7,041	7,943	9,135
Total	280,023,979	326,192,702	320,970,096	325,875,052	326,783,036	325,853,774
4. Roads and Reserves ..	..	15,857,492	16,827,711	16,780,386	16,858,444	16,679,253
5. Unoccupied	132,770,889	59,932,387	64,436,517	59,929,584	59,520,712	60,905,393

Total area of State—429,120,000 acres.

The area open for selection (as distinguished from occupation for purely pastoral or special purposes) under every mode at the beginning of the year 1920 was 12,788,117 acres, and the area opened during the year was 5,775,136 acres, while the area withdrawn was 1,630,696 acres. The area selected was 5,797,666 acres, and the area remaining open at the end of the year was 11,134,891 acres. The number of grazing selections was 463 as against 488 in the previous year, and their gross area 4,816,443 acres, as against 6,531,977 acres.

5. South Australia.—The area of the State of South Australia is 243,244,800 acres. In this State, at the end of the year 1920, there were 10,931,966 acres, or about one twenty-second, alienated absolutely; 3,166,524 acres, or about one seventy-seventh, were in process of alienation; 119,554,730 acres, or about one-half, were occupied under leases and licenses; while the remaining 109,591,580 acres were unoccupied. The subjoined table shews for South Australia the areas of land alienated absolutely, and in process of alienation under deferred payments, and the area held under different forms of leases :—

**SOUTH AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1916 TO 1920.**

Particulars.	Area in Acres.					
	1901.	1916.	1917.	1918.	1919.	1920.
1. Alienated—						
Sold	7,413,510	10,544,779	10,608,162	10,655,953	10,727,484	10,801,634
Granted for Public Purposes ..	121,613	129,429	129,679	129,988	130,332	130,332
Total	7,535,123	10,674,208	10,737,841	10,785,941	10,857,816	10,931,966

**SOUTH AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1916 TO 1920—continued.**

Particulars.	Area in Acres.					
	1901.	1916.	1917.	1918.	1919.	1920.
2. <i>In Process of Alienation</i> ..	553,774	3,039,292	3,104,763	3,025,166	3,038,084	3,166,524
3. <i>Held under Lease and License—</i>						
Right of Purchase ..	5,639,519	2,504,143	2,440,731	2,402,355	2,329,100	2,285,421
Perpetual ..	7,115,782	14,851,173	14,810,026	14,625,839	14,650,223	14,880,901
Pastoral ..	68,916,125	95,016,370	100,889,010	95,264,050	96,358,450	100,904,690
Other Leases and Licenses ..	3,905,729	1,128,630	1,049,522	617,654	806,029	880,420
Mining Leases and Licenses (a) ..	14,140	670,890	247,933	171,170	144,347	603,298
Total ..	85,591,295	114,171,206	119,437,222	113,081,068	114,288,149	119,554,730
4. <i>Total Occupied</i> ..	93,680,192	127,884,706	133,279,826	126,892,175	128,184,049	133,653,220
5. <i>Area Unoccupied</i> ..	149,564,008	115,360,094	109,964,974	116,352,625	115,060,751	109,591,580

Total area of State—243,244,800 acres.

(a) Exclusive of miners' rights.

6. *Western Australia.*—The total area of Western Australia is 624,588,800 acres, of which in 1920, 8,682,107 acres, or about one seventy-second part, were alienated absolutely; 14,258,060 acres, or about one forty-fourth part, were in process of alienation; while 257,641,794 acres, or nearly two-fifths, were occupied under leases and licenses issued either by the Lands or the Mines Departments. The remaining 344,006,839 acres, or nearly five-ninths were unoccupied.

The following table shews the areas alienated absolutely and conditionally, and the areas held under leases and licenses at the end of the year 1901 and on 30th June, 1917, to 1921 :—

**WESTERN AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1917 TO 1921.**

Particulars.	Area in Acres.					
	1901.	1916-17.(a)	1917-18.(a)	1918-19.(a)	1919-20.(a)	1920-21.(a)
1. <i>Absolutely Alienated</i> ..	3,468,878	8,276,084	8,462,085	8,605,479	8,682,107	8,952,580
2. <i>In Process of Alienation—</i>						
Midland Railway Concessions ..	2,768,810	54,800	54,800	54,800	54,800	54,800
Free Homestead Farms ..	283,455	1,351,461	1,288,866	1,228,844	1,186,436	1,017,244
Conditional Purchases ..	1,349,554	7,673,356	11,467,291	11,626,805	12,543,135	13,431,480
Selections from the late W.A. Company ..	75,213	3,088	2,289	2,193	2,193	2,193
Selections under the Agricultural Lands Purchase Act ..	37,235	255,305	247,196	280,250	427,470	485,128
Special Occupation Leases and Licenses ..	8,867	1,398	1,398	1,298	1,298	1,298
Homestead or Grazing Leases ..	286,425	3,897,471	..	..	..	..
Police Land Leases or Licenses ..	1,306,270	47,252	43,275	43,275	42,274	42,274
Immigrant's Grants ..	400	..	..	..	..	..
Village Allotments ..	6	32	31	30	29	29
Working-men's Blocks ..	31	558	482	452	425	405
Total in Process of Alienation ..	6,116,266	13,284,721	13,105,628	13,237,947	14,258,060	15,034,851

(a) Figures are now given as up to 30th June.

WESTERN AUSTRALIA.—ALIENATION AND OCCUPATION OF CROWN LANDS,
1901 AND 1917 TO 1921—continued.

Particulars.	Area in Acres.					
	1901.	1916-17.(a)	1917-18.(a)	1918-19.(a)	1919-20.(a)	1920-21.(a)
3. Leases and Licenses in Force—						
(i) <i>Issued by Lands Department</i>						
Pastoral Leases	96,508,549	189,574,945	204,820,869	241,697,020	253,436,308	254,688,286
Special Leases	448	33,516	38,285	53,584	54,711	54,364
Leases of Reserves	5,296	1,582,174	1,629,115	2,139,541	2,399,237	2,015,075
Selections on Goldfields ..	3,955					
Timber Leases and Licenses	865,180	(b)249,144	(b)627,160	(b)625,186	(b)642,436	(b)624,113
Timber Permits		(b)908,850	(b)823,269	(b)819,520	(b)963,511	(b)1,015,423
Residential Lots	550	274	269	269	284	276
(ii) <i>Issued by Mines Department</i>						
Gold Mining Leases	34,086					
Mineral Leases	6,576	(b)986,350	(b)113,656	(b)114,377	145,307	170,591
Other Leases	8,623					
Licenses	17,397					
Total under Leases and Licenses	97,450,660	192,735,253	208,052,623	245,449,497	257,641,794	258,568,128
4. Area Unoccupied	517,552,998	410,292,742	394,968,464	357,295,877	344,006,839	342,033,241
Total area of State—624,588,800 acres.						

(a) Figures are now given as up to the 30th June.

(b) On the previous 31st December.

7. Tasmania.—Of the total area of Tasmania, namely, 16,777,600 acres, at the end of the year 1920 there were 5,241,856 acres, or about three-tenths, alienated absolutely; 963,915 acres, or about one-sixteenth, were in process of alienation; 2,273,612 acres, or about one-eighth, were occupied under leases and licenses for either pastoral, agricultural, timber, or mining purposes, or for closer or soldier settlement, or occupied or reserved by the Crown; the remaining 8,298,217 acres, or about one-half, being unoccupied. The following table shews the areas alienated, in process of alienation, and held under lease or license, and the area unoccupied at the end of the year 1901 and from 1916 to 1920. Closer Settlement leased areas are in the latter three years not included in the area alienated absolutely, although the settlers have begun to exercise their right of purchase, which right becomes operative ten years after date of lease.

Under the Returned Soldiers Settlement Act 1916 returned soldiers may be granted free of cost one hundred pounds worth of Crown lands, subject to certain conditions being complied with. Up to 30th June, 1921, certificates to occupy 24,127 acres had been granted, but no grants had up to that date been issued :—

**TASMANIA.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND
1916 TO 1920.**

Particulars.	Area in Acres.					
	1901.	1916.	1917.	1918.	1919.	1920.
1. Alienated Absolutely ..	4,621,585	5,179,865	5,155,511	5,197,283	5,241,292	5,241,856
2. In Process of Alienation ..	272,376	1,244,014	1,184,061	1,122,797	1,054,111	963,915
3. Leases or Licenses						
(i) <i>Issued by Lands Department</i>						
Islands	149,165	207,630	197,406	197,918	151,000	107,000
Ordinary Leased Land	1,280,688	1,434,113	1,193,169	1,201,169	1,341,000	1,540,000
Land Leased for Timber	40,768	146,881	155,889	183,804	218,784	230,524
Closer Settlement		(a) 65,781	69,087	68,163	68,163	68,192
Soldier Settlement			3,430	17,556	60,223	162,516
Other Leases						1,000
(ii) <i>Issued by Mines Department</i>	50,362	53,462	54,391	46,600	46,491	46,380
(iii) <i>Occupied by Commonwealth and State Departments ..</i>		16,026	17,150	17,206	18,000	18,000
(vi) <i>Reserved for Public Purposes ..</i>		96,473	99,500	100,000	100,000	100,000
Total	1,520,983	1,954,585	1,790,022	1,832,416	2,003,661	2,273,612
4. Total Area Occupied	6,414,944	8,378,464	8,129,594	8,152,496	8,299,064	8,479,383
5. Area Unoccupied	10,362,656	8,399,136	8,648,006	8,025,104	8,478,536	8,298,217

Total area of State—16,777,600 acres.

(a) Included in 1. Alienated Land.

S. Northern Territory.—On the 1st January, 1911, the Northern Territory was taken over by the Commonwealth. In the Northern Territory at the end of the year 1921, there were 476,556 acres, or only about one seven-hundred-and-fourth part, alienated absolutely; 137,676,653 acres, or more than two-fifths, were held under leases and licenses; while the remaining 196,963,591, or nearly three-fifths, were unoccupied. The following table shews the area of land alienated absolutely, and also the area under lease:—

NORTHERN TERRITORY.—ALIENATION AND OCCUPATION OF CROWN LANDS, 1901 AND 1916 TO 1921.

MILEAGES	Area in Acres.						
	1901.	1916.	1917.	1918.	1919.	1920.	1921.
1. Alienated—							
Sold ..	473,230	475,494	475,494	476,428	476,428	476,508	476,508
Granted for Public Purposes ..	48	48	48	48	48	48	48
Total Alienated	473,278	475,542	475,542	476,476	476,476	476,556	476,556
2. Leased—							
Right of Purchase ..	1,087	436	436	436	436	356	356
Pastoral ..	111,476,240	110,560,129	103,993,600	64,964,864	93,669,760	106,503,680	119,069,780
Other Leases	1,176,931	109,353	108,387	41,365,975	20,048,010	36,770,115	(b) 18,606,537
Total Leases	112,654,288	110,669,918	104,102,423	106,331,275	122,718,206	143,274,151	137,676,653
3. Total Occupied	113,127,566	111,145,460	104,577,965	106,807,751	123,194,682	143,750,707	138,153,209
4. Remainder Unoccupied (a) ..	221,989,234	223,971,340	230,538,835	228,309,049	211,922,118	191,366,093	196,963,591

Total area of Northern Territory—335,116,800 acres.

(a) Including Aboriginal and other reserves, and Mission stations.

(b) Including also pastoral holdings other than pastoral leases.

§ 12. Classification of Holdings According to Size.

1. General.—The classification of holdings according to their area is of interest chiefly in relation to the efforts made by the several States in recent years to promote settlement on the land on blocks of suitable size, especially by means of the Closer Settlement Acts. Returns shewing such a classification are not available for Queensland and the Northern Territory.

The following table gives particulars of the number of holdings in area series, as returned to the collectors of agricultural and pastoral statistics, for all the States excepting Queensland, and for the Federal Capital Territory, to the latest available date:—

CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES.

Size of Holdings.	N.S.W. 1920-21. (a)	Victoria. 1918-19.	S. Aust. 1920-21.	W. Aust. 1920.	Tasmania. 1920-21.	Federal Territory. 1920-21. (a)
NUMBER.						
Acres.						
1 and under 50 ..	16,556	20,866	7,300	3,754	4,539	4
50 " 100 ..	7,841	8,036	1,832	657	2,521	5
100 " 500 ..	26,278	26,246	6,015	2,938	5,412	26
500 " 1,000 ..	10,789	11,224	4,243	3,133	776	18
1,000 " 5,000 ..	9,463	5,865	4,179	4,510	738	17
5,000 " 10,000 ..	1,066	290	114	299	128	5
10,000 " 20,000 ..	487	117	40	89	60	..
20,000 " 50,000 ..	229	35	14	26	32	1
50,000 and over ..	71	..	..	6	5	..
Total ..	72,780	72,679	23,737	15,412	14,211	76

(a) See note (a) on next page.

CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES—*continued.*

Size of Holdings.	N.S.W. 1921-21. (a)	Victoria. 1918-19.	S. Aust. 1920-21.	W. Aust. 1920.	Tasmania. 1920-21.	Federal Territory. 1920-21. (a)
AREA.						
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1 and under 50 ..	361,854	370,426	118,105	48,319	76,447	128
50 " 100 ..	605,855	572,349	137,715	55,200	174,417	395
100 " 500 ..	6,889,295	6,517,118	1,715,316	771,823	1,116,068	6,996
500 " 1,000 ..	7,582,944	7,763,815	3,344,664	2,569,460	525,869	13,382
1,000 " 5,000 ..	18,770,706	10,117,530	7,202,923	9,042,965	1,586,459	31,576
5,000 " 10,000 ..	7,297,565	1,996,606	771,876	2,072,050	899,212	34,009
10,000 " 20,000 ..	6,604,423	1,621,460	569,156	1,221,603	776,749	..
20,000 " 50,000 ..	6,660,679	1,016,847	349,811	724,362	884,811	22,050
50,000 and over ..	6,267,129	..	..	397,615	392,258	..
Total	61,040,450	29,976,151	13,900,366	16,103,757	6,432,290	108,536

(a) In New South Wales, including Federal Capital Territory, an alteration was made in 1919-20 regarding the smaller holdings included in the classification. In previous years, many holdings (nearly all from 1 to 5 acres in extent), which were not used for agricultural or pastoral purposes, were included. In 1919-20, there were included only holdings on which improvements had been effected and upon which agricultural or pastoral activities were conducted. This applies also to later years.

2. New South Wales.—The total number of holdings of one acre and over in area in this State on the 31st March, 1901, was 69,439. On the 31st March, 1921, the corresponding number was 72,780. The following table shews the number of holdings for which returns were received for 1900-1 and the years 1914-15 to 1920-21, except 1916-17 and 1917-18, figures for which are not available :—

NEW SOUTH WALES.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES, 1901 AND 1915 TO 1921.

Size of Holdings.	1900-01.	1914-15.	1915-16.	1918-19.	1919-20.	1920-21.
Acres.	Number.	Number.	Number.	Number.	Number.	Number.
1 to 50 ..	28,155	39,602	40,033	41,732	22,404	16,556
51 " 100 ..	8,929	8,771	8,586	8,291	8,251	7,841
101 " 500 ..	20,504	26,576	26,405	25,978	26,323	26,278
501 " 1,000 ..	6,105	9,068	9,326	9,982	10,362	10,789
1,001 " 5,000 ..	4,464	7,777	7,971	8,723	9,105	9,463
5,001 " 10,000 ..	579	928	942	1,014	1,045	1,066
10,001 " 20,000 ..	352	389	411	455	485	487
20,001 " 50,000 ..	202	231	233	233	229	229
50,001 and over ..	149	78	76	72	75	71
Total	69,439	93,420	93,983	96,480	78,279	72,780

3. Victoria.—The following table shews the number and area of holdings on the 1st March of those years for which figures are available :—

VICTORIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES, 1906 TO 1919.

Size of Holdings.	1906.	1908.	1910.	1912.	1919.
Acres.	Number.	Number.	Number.	Number.	Number.
1 to 50 ..	13,309	14,692	16,609	18,757	20,866
51 " 100 ..	5,864	6,223	6,696	7,356	8,036
101 " 500 ..	21,628	22,510	23,397	24,735	26,246
501 " 1,000 ..	7,688	7,817	8,216	10,181	11,224
1,001 " 5,000 ..	4,083	4,409	4,908	5,364	5,865
5,001 " 10,000 ..	220	231	239	267	290
10,001 " 20,000 ..	116	118	131	116	117
20,001 " 50,000 ..	73	61	42	34	35
50,001 and over ..	6	4	2	1	..
Total	52,987	56,065	60,240	66,811	72,679

4. South Australia.—In the State of South Australia the classification of holdings was available for the first time in 1910-11. The following table shews the number and area of such holdings for that and some later years, for which returns are available :—

**SOUTH AUSTRALIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER)
IN AREA SERIES, 1910-11 TO 1920-21.**

Size of Holdings.		1910-11.	1915-16.	1916-17.	1918-19.	1919-20.	1920-21.
Acres.		Number.	Number.	Number.	Number.	Number.	Number.
1 to	50	6,745	7,195	7,272	7,204	7,120	7,300
51 "	100	1,646	1,793	1,867	1,840	1,822	1,832
101 "	500	5,542	6,033	6,016	5,953	6,024	6,015
501 "	1,000	3,370	3,977	4,057	4,050	4,081	4,243
1,001 "	5,000	2,540	3,794	4,006	4,132	3,991	4,179
5,001 "	10,000	110	125	127	114	121	114
10,001 "	20,000	53	42	43	49	46	40
20,001 "	50,000	23	24	24	23	16	14
50,001 and over		1	..	..	..	..	..
Total	..	20,030	22,983	23,412	23,365	23,221	23,737

5. Western Australia.—In this State the number of holdings of one acre and over in area was 5,699 for the season 1900-1, and 15,412 for the year 1920. The subjoined table shews the classification of holdings for which agricultural and pastoral returns were received for 1901 and 1915 to 1920 :—

**WESTERN AUSTRALIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER)
IN AREA SERIES, 1901 AND 1915 TO 1920.**

Size of Holdings.		1900-1.	1915.	1916.	1917.	1918.	1919.	1920.
Acres.		Number.	Number.	Number.	Number.	Number.	Number.	Number.
1 to	50	1,728	3,898	3,813	3,696	3,533	3,670	3,754
51 "	100	198	640	620	643	607	635	657
101 "	500	2,302	3,370	3,267	3,064	2,965	2,952	2,938
501 "	1,000	717	3,687	3,605	3,462	3,310	3,170	3,133
1,001 "	5,000	607	4,229	4,146	4,080	4,154	4,187	4,510
5,001 "	10,000	73	254	268	249	263	285	299
10,001 "	20,000	38	82	82	103	95	93	89
20,001 "	50,000	36(a)	27	28	24	27	32	26
50,001 and over		..	7	4	3	4	4	6
Total	..	5,699	16,194	15,833	15,324	14,958	15,028	15,412

(a) Including all holdings of 20,001 acres and upwards.

6. *Tasmania*.—In Tasmania the total number of holdings for which returns were received as on the 1st March, 1909, was 12,413. Particulars for previous years are not available. The following table shews the classification of such holdings in area series for 1914-15 and subsequent years :—

TASMANIA.—CLASSIFICATION OF HOLDINGS (ONE ACRE AND OVER) IN AREA SERIES, 1914-15 TO 1920-21.

Size of Holdings.		1914-15.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Acres.	Number.	Number.	Number.	Number.	Number.	Number.	Number.	Number.
1 to 50 ..	4,416	4,403	4,392	4,606	4,636	4,546	4,539	
51 „ 100 ..	2,306	2,299	2,293	2,348	2,363	2,428	2,521	
101 „ 500 ..	5,165	5,148	5,134	5,163	5,196	5,237	5,412	
501 „ 1,000 ..	731	729	727	788	793	771	776	
1,001 „ 5,000 ..	676	674	672	723	728	731	738	
5,001 „ 10,000 ..	168	167	167	125	126	130	128	
10,001 „ 20,000 ..	70	69	69	56	57	62	60	
20,001 „ 50,000 ..	35	35	35	33	33	31	32	
50,001 and over ..	3	3	3	5	5	6	5	
Total ..	13,570	13,527	13,492	13,847	13,937	13,942	14,211	

§ 13. The Progress of Land Settlement, 1901 to 1920.

1. *Recent Progress*.—The progress of settlement and the growth of land alienation in the States of the Commonwealth under recent legislation is seen in the subjoined statement, which shews concisely the condition of the public estate in each State and in the Commonwealth, at the end of 1901 and of each year from 1916 to 1920 inclusive. The effect of the land laws during that period has been generally to diminish the number of large holdings, at the same time restricting the area held under lease, while both the area alienated and the area in process of alienation have increased. As leases of large areas fall in or are otherwise terminated they are in many cases not renewed, but the land is then cut up for the purpose of settlement under systems of deferred payment; the State Governments, also, have in many cases acquired by repurchase considerable areas under the provisions of the various Closer Settlement Acts. Further, greater facilities have been granted to the working classes to acquire possession of the soil, and special inducements have been offered to bona fide settlers by the introduction of new forms of tenure on easy terms and conditions.

From 1901 to 1920 the area alienated absolutely in the whole Commonwealth increased by 32,932,108 acres, or more than 43 per cent.; the area in process of alienation increased by 21,688,270 acres, or nearly 62 per cent.; the area leased by 253,195,943 acres, or 35 per cent.; while the area unoccupied decreased by 307,843,241 acres, or nearly 29 per cent.

TOTAL AREA ALIENATED, IN PROCESS OF ALIENATION, HELD UNDER LEASE OR LICENSE AND UNOCCUPIED,

EXPRESSED ABSOLUTELY AND AS PERCENTAGES OF AREA OF ENTIRE STATE FOR THE YEARS 1901 AND 1916 TO 1920.

Year.	Alienated.		In Process of Alienation.		Held under Lease or License.		Occupied by the Crown or Unoccupied.(a)	
	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.

NEW SOUTH WALES.—AREA, 198,036,500 ACRES.(c)

1901b	26,443,554	13.32	21,595,688	10.87	127,055,370	63.96	23,543,468	11.85
1916c	40,363,316	20.38	19,409,656	9.80	118,865,868	60.02	19,397,660	9.80
1917c	40,661,225	20.53	19,847,737	10.02	117,239,952	59.20	20,287,586	10.25
1918c	40,855,172	20.63	20,470,027	10.34	116,391,054	58.77	20,320,247	10.26
1919c	41,366,535	20.89	20,724,214	10.46	115,335,741	58.24	20,610,010	10.41
1920c	41,885,762	21.15	20,876,424	10.54	115,861,222	58.51	19,413,092	9.80

VICTORIA.—AREA, 56,245,760 ACRES.

1901	20,066,875	35.67	3,730,351	6.63	17,110,709	30.42	d15,337,825	d27.28
1916	24,345,425	43.28	8,278,904	14.72	12,433,959	22.11	d11,187,472	d19.89
1917	24,427,467	43.43	8,096,052	14.39	12,383,810	22.02	d11,338,431	d20.16
1918	24,503,531	43.57	8,106,887	14.41	10,649,247	18.93	d12,986,095	d23.09
1919	24,605,825	43.75	8,811,478	15.66	10,944,854	19.46	d11,883,603	d21.13
1920	24,793,053	44.08	8,746,102	15.55	9,991,558	17.76	d12,715,047	d22.61

QUEENSLAND.—AREA, 429,120,000 ACRES.

1901	13,533,468	3.15	2,791,664	0.65	280,023,979	65.26	132,770,889	30.94
1916	16,570,590	3.86	10,566,829	2.46	326,192,702	76.02	75,789,879	17.66
1917	16,669,837	3.88	10,215,839	2.38	320,970,096	74.80	81,264,228	18.94
1918	16,771,717	3.91	9,763,261	2.27	325,875,052	75.94	76,709,970	17.88
1919	16,893,19	3.94	9,064,089	2.11	326,783,036	76.15	76,379,156	17.80
1920	17,022,300	3.97	8,659,280	2.02	325,853,774	75.93	77,584,646	18.08

SOUTH AUSTRALIA.—AREA, 243,244,800 ACRES.

1901	7,535,123	3.10	553,774	0.23	85,591,295	35.18	149,564,608	61.49
1916	10,674,208	4.39	3,039,292	1.25	114,171,206	46.94	115,360,094	47.42
1917	10,737,841	4.41	3,104,763	1.28	119,437,222	49.10	109,964,974	45.21
1918	10,785,941	4.44	3,025,166	1.24	113,081,068	46.49	116,352,625	47.83
1919	10,857,916	4.46	3,038,084	1.25	114,288,146	46.99	115,060,751	47.30
1920	10,931,966	4.50	3,166,524	1.30	119,554,730	49.15	109,591,580	45.05

(a) Including roads and reserves. (b) To 31st December; subsequent years to 30th June.

(c) Exclusive of Commonwealth Territory which is included in the figures for 1901.

(d) Including Mines Department leases and licenses.

TOTAL AREA ALIENATED, IN PROCESS OF ALIENATION, ETC.—*continued.*

Year.	Alienated.		In Process of Alienation.		Held under Lease or License.		Occupied by the Crown or Unoccupied. (a)	
	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.	Area in Acres.	Per Cent.
WESTERN AUSTRALIA.—AREA, 624,588,800 ACRES.								
1901	3,468,878	0.56	6,116,266	0.98	97,450,660	15.60	517,552,996	82.86
1916b	8,125,629	1.30	13,584,076	2.18	196,772,098	31.50	406,106,997	65.02
1917b	8,276,084	1.32	13,284,721	2.13	192,735,253	30.86	410,292,742	65.69
1918b	8,462,085	1.35	13,105,628	2.10	208,052,623	33.31	394,968,464	63.24
1919b	8,605,479	1.38	13,237,947	2.12	245,449,497	39.30	357,295,877	57.20
1920b	8,682,107	1.39	14,253,060	2.28	257,641,794	41.25	344,006,839	55.08

TASMANIA.—AREA, 16,777,600 ACRES.

1901	4,621,585	27.54	272,376	1.62	1,520,983	9.06	10,362,656	61.78
1916	5,179,865	30.87	1,244,014	7.42	1,954,585	11.65	8,399,136	50.06
1917	5,155,511	30.73	1,184,061	7.06	1,790,022	10.67	8,648,006	51.54
1918	5,197,283	30.98	1,122,797	6.69	1,832,416	10.92	8,625,104	51.41
1919	5,241,292	31.24	1,054,111	6.28	2,003,661	11.94	8,478,536	50.54
1920	5,241,856	31.24	963,915	5.75	2,273,612	13.55	8,298,217	49.46

NORTHERN TERRITORY.—AREA, 335,116,800 ACRES.

1901	473,278	0.14	..	..	112,654,288	33.62	221,989,234c	66.24
1916	475,542	0.14	..	..	110,669,918	33.02	223,971,340c	66.84
1917	475,542	0.14	..	..	104,102,423	31.07	230,538,835c	68.79
1918	476,476	0.14	..	..	106,331,275	31.73	228,309,049c	68.13
1919	476,476	0.14	..	..	122,718,206	36.62	211,922,118c	63.24
1920	476,556	0.14	..	..	143,274,151	42.75	191,366,093c	57.11

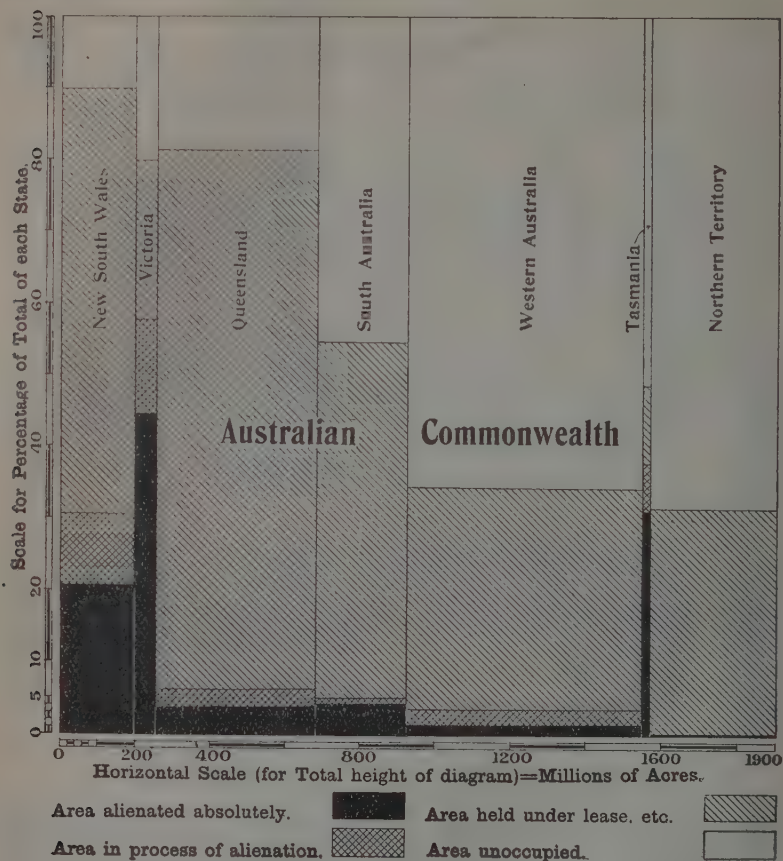
THE COMMONWEALTH. (d)—AREA, 1,903,731,840 ACRES.

1901	76,142,761	4.00	35,060,119	1.84	721,407,284	37.89	1,071,121,676	56.27
1916	105,773,536	5.56	56,203,750	2.95	881,353,026	46.30	860,401,523	45.20
1917	106,444,507	5.59	55,812,496	2.93	868,990,307	45.65	872,484,530	45.83
1918e	107,093,317	5.63	55,672,578	2.92	882,365,600	46.35	858,600,345	45.10
1919f	108,088,411	5.68	56,009,047	2.94	937,675,530	49.25	801,958,852	42.13
1920g	109,074,869	5.73	56,748,389	2.98	974,603,227	51.20	763,305,355	40.09

(r) Including roads and reserves. (b) To 30th June. (c) Including aboriginal reserves and mission stations. (d) Including Federal Territory (601,580 acres). (e) Including Federal Territory: 41,112 acres or 6.83 %, alienated; 78,812 acres, or 13.10 %, in process of alienation; 152,865 acres, or 25.41 %, held under lease or license; 328,791 acres, or 54.66 %, occupied by the Crown or unoccupied. (f) Including Federal Capital Territory: 41,269 acres, or 7.07 %, alienated; 79,124 acres, or 13.56 %, in process of alienation; 152,386 acres, or 26.11 %, held under lease or license; 310,881 acres, or 53.26 %, occupied by the Crown or unoccupied. (g) Including Federal Capital Territory: 41,269 acres, or 7.07 %, alienated; 78,084 acres, or 13.38 %, in process of alienation; 152,386 acres, or 26.11 %, held under lease or license; 311,921 acres, or 53.44 %, occupied by the Crown or unoccupied.

2. Diagram shewing Condition of Public Estate. The following diagram shews the condition of the public estate in the Commonwealth at the end of the year 1917, since which year some slight increases or decreases, which can be seen from the tables (*supra*) have occurred. The square itself represents the total area of the Commonwealth, while the relative areas of individual States are shewn by the vertical rectangles. The areas alienated absolutely, in process of alienation under systems of

deferred payments, and the areas held under leases or licenses, are designated by the differently-shaded areas as described in the reference given below the diagram, while the areas unoccupied are left unshaded :—



3. Federal Capital Territory.—The following particulars relate to the tenures of land within the Federal Capital Territory at the end of the year 1921 :—

FEDERAL CAPITAL TERRITORY, TENURES OF LAND, 1921.

	Acres.
Area of acquired lands	205,424
Lands alienated	39,967
In process of alienation (conditional purchases and conditional leases) ..	78,064
Held under lease issued by the State	152,378
Unoccupied lands (roads, reserves, &c.)	107,827
Total Area of Territory	583,660

SECTION VII.

PASTORAL PRODUCTION.

§ 1. Initiation and Growth of Pastoral Industry.

1. **Early Statistics.**—In earlier issues of the Year Book will be found a brief reference to the pastoral industry in Australia prior to the year 1860. (See Year Book No. 6, page 330.)

2. **Subsequent Statistics.**—While the statistical records of live stock in Australia prior to the year 1860 are somewhat defective, from that year onwards fairly complete particulars are available for most of the States. At the present time, statistics of live stock are collected annually in all the States principally through the agency of the police, but in the years 1885 to 1888 inclusive, and 1893 to 1895 inclusive, these particulars were not collected in South Australia, and similar gaps occur in the Victorian records for the periods 1895 to 1899 inclusive, and 1901 to 1903. In order to obtain totals for the Commonwealth for these years the missing numbers have been supplied by interpolation. The results so obtained probably differ but slightly from the actual numbers for the respective years.

3. **Increase in Numbers.**—Particulars concerning the numbers of each of the principal kinds of live stock in the Commonwealth at decennial intervals from 1860 to 1910, and from 1916 onwards in single years, are given in the following table, and are shown continuously in the graphs hereinafter.

During the sixty years covered by the table the live stock of the Commonwealth increased considerably, horses 460 per cent., cattle 241 per cent., sheep 287 per cent., and pigs 118 per cent. The average annual increases which these aggregates represent are as follows:—Horses 2.91 per cent.; cattle 2.07 per cent.; sheep 2.28 per cent.; and pigs, 1.31 per cent.

COMMONWEALTH LIVE STOCK, 1860 TO 1920.

Year.	Horses.	Cattle.	Sheep.	Pigs.
1860	431,525	3,957,915	20,135,286	351,096
1870	716,772	4,276,326	41,593,612	543,388
1880	1,061,078	7,523,000	62,176,027	815,776
1890	1,521,588	10,299,913	97,881,221	891,138
1900	1,609,654	8,640,225	70,602,995	950,349
1910	2,165,866	11,744,714	92,047,015	1,025,850
1916	2,436,148	10,459,237	76,668,604	1,006,763
1917	2,497,903	11,829,138	84,965,012	1,169,365
1918	2,527,149	12,738,852	87,086,236	913,902
1919	2,421,201	12,711,067	75,554,082	695,968
1920	2,415,510	13,499,737	77,897,555	764,406

4. *Fluctuations.*—The increases referred to, however, have not been continuous, marked fluctuations having taken place during the period, mainly on account of the droughts which have from time to time left their impress on the pastoral history of Australia. These were in evidence in 1869, 1877, 1884, 1895 and subsequent years, 1902, to some extent in 1908, and in a severer form during the earlier half of 1912, and again during 1914 and 1915. Thus, at the commencement of hostilities, Australia was settling down to a disastrous drought, and the termination of the war likewise marked the beginning of a protracted dry spell which was not broken until the winter of 1920. Though the whole of Australia was visited by drought in this latter instance the visitation was not concurrent in all parts of the Commonwealth, and much country suitable for agistment purposes was available at intervals, which fact probably accounted for the slight losses of cattle recorded during 1919. The number of sheep however decreased by 11,532,154, and the wheat crop was practically a failure.

The extraordinary recuperative power of Australia is reflected in the large increases in the numbers of stock which occurred in the good seasons supervening on the various droughts. Thus, in the nine years from 1902 to 1911, horses increased by 754,426, cattle by 4,766,212, and sheep by 39,335,174, the corresponding increases per cent. per annum being horses 4.57 per cent., cattle 5.90 per cent., and sheep 6.30 per cent.

The years in which the numbers of live stock attained their maxima are as follows:—Horses, 1918, 2,527,149; cattle, 1920, 13,499,737; sheep, 1891, 106,421,068; and pigs, 1917, 1,169,365.

5. *Live Stock in Relation to Population.*—The number of each kind of live stock per head of the population of the Commonwealth has varied during the past sixty years in the manner shewn in the succeeding table:—

NUMBER OF AUSTRALIAN LIVE STOCK PER HEAD OF POPULATION, 1860 TO 1920.

Year.	Horses.	Cattle.	Sheep.	Pigs.	Year.	Horses.	Cattle.	Sheep.	Pigs.
1860 ..	0.38	3.45	17.58	0.31	1915 ..	0.48	2.00	13.94	0.15
1870 ..	0.43	2.60	25.24	0.33	1916 ..	0.49	2.12	15.53	0.20
1880 ..	0.48	3.37	27.87	0.37	1917 ..	0.50	2.36	16.97	0.23
1890 ..	0.48	3.27	31.06	0.28	1918 ..	0.49	2.48	16.99	0.18
1900 ..	0.43	2.29	18.75	0.25	1919 ..	0.45	2.38	14.15	0.13
1910 ..	0.49	2.65	20.80	0.23	1920 ..	0.44	2.49	14.35	0.14

Considered in relation to population, the live stock attained its maximum for the period 1860–1920 in the quinquennium 1890–4, and its minimum in the year 1902. During the period under review, the number of horses varied but slightly in proportion to population, the range for the years shewn above being from 0.38 to 0.50 per head. In the case of cattle, the corresponding limits of variation were 2.00 and 3.45; sheep, 13.94 and 31.06; and pigs, 0.13 and 0.37.

6. **Live Stock in Relation to Area.**—The numbers of live stock per square mile in the several States and Territories of the Commonwealth are given in the following table :—

NUMBER OF LIVE STOCK PER SQUARE MILE.

States and Territories.	Date.	Horses.	Cattle.	Sheep.	Pigs.
New South Wales ..	30th June, 1921 ..	2.14	10.88	108.88	0.99
Victoria ..	1st March, 1921 ..	5.55	17.92	138.49	1.99
Queensland ..	31st Dec., 1920 ..	1.41	9.63	25.96	0.16
South Australia ..	30th June, 1921 ..	0.71	0.99	16.73	0.20
Western Australia ..	31st Dec., 1920 ..	0.18	0.87	6.69	0.06
Tasmania ..	1st March, 1921 ..	1.49	7.94	59.92	1.45
Northern Territory ..	31st Dec., 1920 ..	0.07	1.26	0.01	0.00
Federal Territory ..	30th June, 1921 ..	1.42	7.86	170.20	0.30
Commonwealth ..	1920-21 ..	0.81	4.54	26.19	0.26

7. **Minor Classes of Live Stock.**—The numbers of minor classes of live stock returned for 1920-21 were as follows :—Goats, 220,608; camels, 12,649; mules and donkeys, 13,844; and ostriches, 959. Of these, goats and mules were most numerous in Queensland; camels and donkeys in Western Australia; and ostriches in South Australia. In the raising of goats, considerable attention has in recent years been devoted to the angora goat and its product (mohair), and about 15,000 angora goats are included in the total of 220,608 goats shewn above. Of these, 4,517 were in New South Wales, 2,415 in Western Australia, and 3,210 in Queensland, while the quantity of mohair produced in the latter State in 1920 was set down at 1,858 lbs., and the number of skins placed on the market was returned as 314.

8. **Net Exports of Principal Pastoral Products.**—The quantities by which the exports of the principal pastoral products of the Commonwealth exceeded the imports for the years 1916-17 to 1920-21 are as follows :—

QUANTITIES OF NET EXPORTS OF PRINCIPAL PASTORAL PRODUCTS OF THE COMMONWEALTH, 1916-17 TO 1920-21.

Products.	Unit of Quantity.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Animals (Living)—						
Cattle	No.	2,743	1,117	644	3,133	4,396
Horses	No.	14,228	23,876	8,686	5,787	8,195
Sheep	No.	3,198	9,080	18,001	21,601	19,307
Bones	cwt.	26,884	20,363	25,669	29,198	24,160
Glue Pieces and Sinews ..	"	26,973	11,015	3,878	8,158	—3,920
Glycerine	lb.	(a)	(a)	1,633,510	—21,745	—854,234
Hair	"	514,752	324,523	402,869	600,595	100,434
Hoofs	cwt.	10,497	8,618	10,000	11,382	7,580
Horns	"	(a)	(a)	(a)	(a)	(a)
Meats—						
Frozen Beef	lb.	242,040,115	180,222,185	119,938,442	120,939,750	179,618,149
Frozen Mutton and Lamb ..	"	66,811,263	19,174,231	59,672,405	246,957,427	54,892,764
Frozen Rabbits and Hares ..	pair	12,674,472	13,164,307	5,132,983	9,622,150	3,925,004
Frozen, Other	lb.	10,773,154	8,286,035	12,329,539	11,397,792	7,901,468
Potted and Extract of ..	"	(a)	(a)	(a)	(a)	(a)
Preserved in Tins, etc. ..	"	21,922,630	43,036,310	65,118,256	47,550,045	8,296,500
Other (excluding Bacon and Ham)	"	35,833	261,301	424,777	755,141	489,401
Sausage Casings	"	(a)	(a)	(a)	(a)	(a)
Skins—						
Hides	No.	98,124	15,873	26,819	540,415	—8,317
Sheep	"	4,753,464	2,907,431	6,663,978	10,143,952	5,117,431
Rabbit and Hare	cwt.	48,403	71,990	117,569	127,452	49,427
Other, including Undressed Furs	No.	(a)	(a)	(a)	(a)	(a)
Tallow	cwt.	555,427	345,849	870,950	712,307	524,220
Wool—Greasy	lb.	331,776,079	243,784,651	457,995,701	552,307,700	417,647,343
Scoured	"	51,727,629	62,865,373	106,313,411	84,900,446	61,523,697
Tops	"	4,869,452	4,571,357	2,822,578	6,148,118	6,598,681

NOTE.—The minus sign (—) signifies net imports. (a) Quantity not available.

The values of the net exports for the same five years are furnished in the next table, and amount to no less a total than £254,874,870 for the period, or an average of £50,974,974 per annum, of which wool represents 70 per cent. Meats, skins, and tallow rank next in order of importance.

VALUES OF NET EXPORTS OF PRINCIPAL PASTORAL PRODUCTS OF THE COMMONWEALTH, 1916-17 TO 1920-21.

Products.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Animals (living)—	£	£	£	£	£
Cattle	4,582	—10,093	3,567	—23,855	30,350
Horses	306,200	453,616	161,533	117,739	137,497
Sheep	8,474	15,049	35,007	57,854	140,975
Bones	20,783	21,806	27,156	31,534	21,839
Blue Pieces and Sinews	21,416	15,196	6,904	15,340	302
Glycerine	26,459	41,256	58,073	1,351	—39,374
Hair	26,802	21,243	29,335	66,943	28,416
Hoofs	6,363	7,848	11,091	14,526	8,180
Horns	4,191	13,309	18,474	52,383	29,609
Meats—					
Frozen Beef	4,945,716	3,697,957	2,471,136	2,474,904	3,819,094
Frozen Mutton and Lamb	1,540,546	452,627	1,298,086	5,482,263	1,578,634
Frozen Rabbits and Hares	913,142	985,190	308,965	762,936	432,745
Frozen, Other	195,846	199,847	381,780	305,948	190,795
Potted and Extract of	65,471	224,464	328,233	99,599	9,649
Preserved in Tins, &c.	952,369	2,308,989	3,771,373	2,778,503	380,694
Other (excluding Bacon and Ham)	1,151	7,655	15,380	37,845	16,741
Sausage Casings	1,210	—29,089	101,490	212,427	—43,160
Skins—					
Hides	184,262	211,449	156,084	1,089,731	—113,202
Sheep	1,137,832	808,782	1,921,411	2,585,171	1,228,012
Rabbit and Hare	433,546	1,155,824	1,314,366	3,670,791	968,972
Other (including Undressed Furs)	188,738	276,537	313,472	2,268,748	715,656
Tallow	1,241,219	886,128	2,167,728	2,855,602	1,347,400
Wool—Greasy	21,870,113	16,981,347	31,477,707	33,414,608	25,298,176
Scoured	5,394,259	6,094,040	10,351,553	9,169,282	6,426,167
Tops	1,204,670	1,510,799	935,212	2,957,679	2,049,588
Total Values	40,695,265	36,350,876	57,665,116	75,499,858	44,663,755

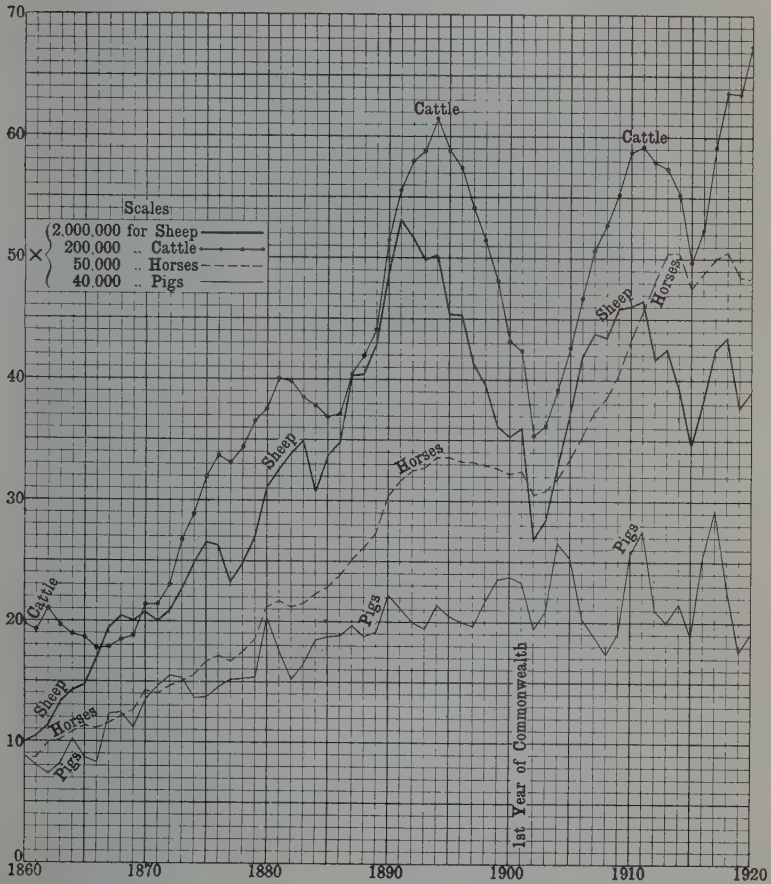
NOTE.—The minus sign (—) signifies net imports.

§ 2. Horses.

1. **Suitability of Australia for Horse-breeding.**—From the earliest times the suitability of the climate and pastures of Australia for the production of serviceable breeds of horses has been fully recognised. By the importation of high-class sires, and the careful selection of breeding mares, these natural advantages are utilised to the fullest extent, all classes of horses being bred. As a consequence of this combination of advantages, the Australian horse, whether of the heavy draught, medium weight, or light saddle and carriage variety, compares more than favourably with the product of other lands. The Australian horse has been found suitable for the army in India, and large numbers are obtained annually for remount purposes. During the recent war Australian horses were found to be well adapted for all purposes, especially in Palestine.

2. **Distribution throughout the Commonwealth.**—As regards numbers, the State of New South Wales, the earliest settled of the group, established a lead, which it retained till the year 1914, when it gave place to Queensland, where rapid progress had been in

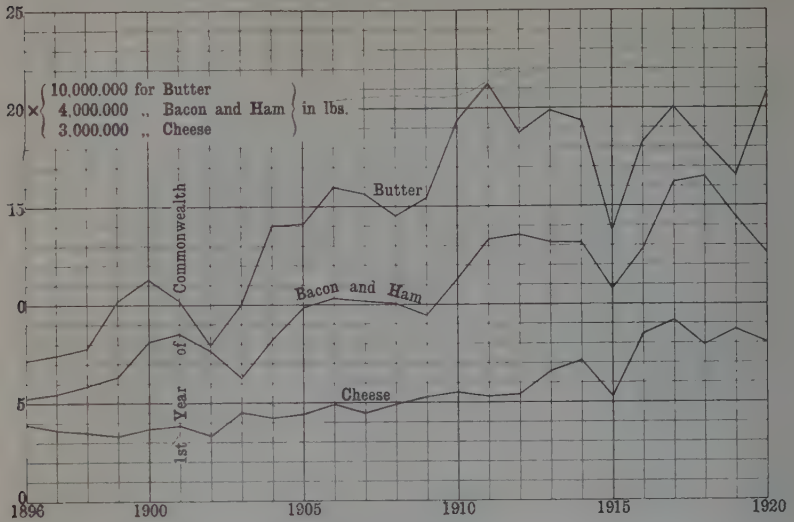
GRAPHS SHEWING NUMBER OF HORSES, CATTLE, SHEEP, AND PIGS IN THE COMMONWEALTH FROM 1860 TO 1920.



(See page 205.)

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year. The totals of the horses, cattle, sheep, and pigs for the Commonwealth are indicated by the several curves or graphs, the vertical side of a small square representing 2,000,000 in the case of sheep; 200,000 for cattle; 50,000 for horses; 40,000 for pigs.

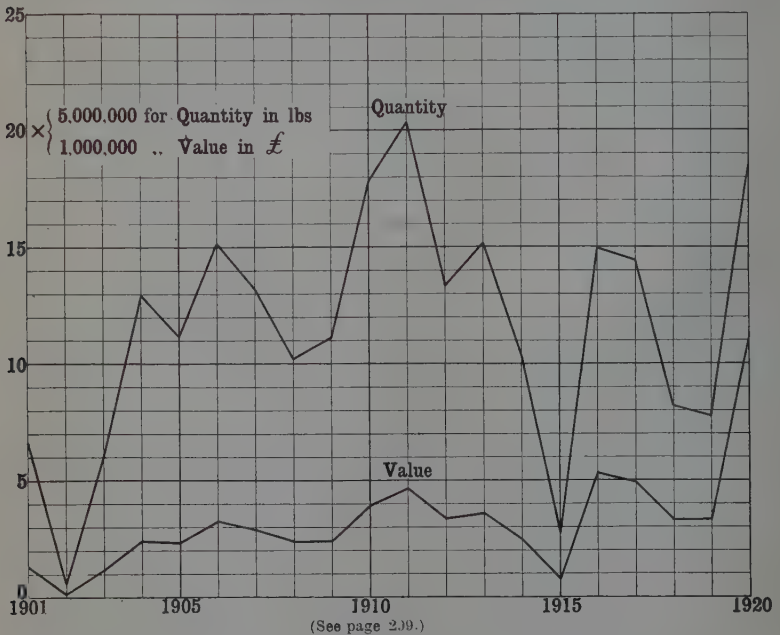
GRAPHS SHEWING THE PRODUCTION OF BUTTER AND CHEESE, AND BACON AND HAM IN THE COMMONWEALTH FROM 1896 TO 1920.



(See pages 298 and 301.)

EXPLANATION OF GRAPHS.—The base of each small rectangle represents an interval of one year, and the vertical height of each small rectangle denotes in the case of butter 10,000,000 lbs.; in the case of bacon and ham, 4,000,000 lbs.; and in the case of cheese 3,000,000 lbs.

GRAPHS SHEWING THE QUANTITY AND VALUE OF NET EXPORTS OF BUTTER FROM THE COMMONWEALTH, FROM 1901 TO 1920.



(See page 239.)

EXPLANATION OF GRAPHS.—The base of each small rectangle represents an interval of one year, and the vertical height of each small rectangle represents 5,000,000 lbs. in weight, or £1,000,000 in value.

evidence during the previous decade. New South Wales regained the lead during the next three seasons, but Queensland again replaced the latter State in 1918, and has strengthened its position during the past two seasons. Particulars for the several States for a series of years are as follows:—

**NUMBER OF HORSES IN STATES, TERRITORIES, AND COMMONWEALTH,
1860 TO 1920.**

Year.	N.S.W.	Vic. (a)	Q'land.	S. Aust.	W. Aust.	Tas. (a)	N.T.	F.T.	C'wealth.
1860 ..	251,497	76,536	23,504	49,399	9,555	21,034	..	..	431,525
1870 ..	337,597	167,220	83,358	83,744	22,174	22,679	..	..	716,772
1880 ..	395,984	275,516	179,152	148,219	34,568	25,267	c2,372	..	1,061,078
1890 ..	444,163	436,459	365,812	187,686	44,384	31,165	11,919	..	1,521,588
1900 ..	481,417	392,237	456,788	166,790	68,253	31,607	12,562	..	1,609,654
1910 ..	650,636	472,080	593,813	249,326	134,114	41,388	24,509	..	2,165,866
1916 ..	b732,334	514,403	696,508	b257,422	169,736	42,620	21,674	b1,457	2,436,148
1917 ..	b740,806	514,061	731,977	b262,840	178,151	42,396	26,231	b1,441	2,497,903
1918 ..	b721,302	523,788	758,632	b269,255	180,094	41,221	31,436	b1,421	2,527,149
1919 ..	b660,751	513,500	730,326	b264,901	174,919	39,452	35,839	b1,513	2,421,201
1920 ..	b661,846	487,503	741,024	b268,187	178,664	39,117	37,837	b1,332	2,415,510

(a) 1st March year following. (b) 30th June year following. (c) Statistics not collected prior to 1880.

3. Proportion in the Several States and Territories.—The percentages of the number of horses in the several States and Territories on the total for the Commonwealth for the past five years are as follows:—

**PERCENTAGE OF HORSES IN EACH STATE AND TERRITORY ON THE TOTAL
FOR COMMONWEALTH, 1916 TO 1920.**

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	F.T.	C'wealth.
	%	%	%	%	%	%	%	%	%
1916 ..	30.05	21.11	28.62	10.56	6.96	1.75	0.89	0.06	100.00
1917 ..	29.64	20.57	29.33	10.52	7.13	1.70	1.05	0.06	100.00
1918 ..	28.53	20.72	30.05	10.65	7.12	1.63	1.24	0.06	100.00
1919 ..	27.29	21.21	30.16	10.94	7.23	1.63	1.48	0.06	100.00
1920 ..	27.40	20.18	30.68	11.10	7.40	1.62	1.57	0.05	100.00

During the period under review Queensland has shewn the largest increase, i.e., 2 per cent., gained at the expense of New South Wales. The position of the remaining States, with the exception of Victoria with a decrease of 1 per cent., has altered but little.

4. Oversea Export Trade in Horses.—Australia's export trade in horses is fairly considerable, though somewhat fluctuating. During the past five years it has varied in number between 5,939 for the year 1919–20 and 24,172 in 1917–18, and in value between £166,817 in the former and £502,557 during the latter year. The total number of horses exported during the five years, exclusive of those shipped for military purposes, amounted to 63,758, an average of 12,752 per annum. The total value of the exports for the period

was £1,388,568, or £277,714 per annum. The average export value per head for the period was £21 15s. 7d. The numbers exported to the principal countries concerned in this trade are as follows:—

NUMBER AND DESTINATION OF HORSES EXPORTED FROM THE
COMMONWEALTH, 1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	No.	No.	No.	No.	No.	No.
India	15,744	23,890	7,622	4,119	6,829	58,104
New Zealand	40	26	11	95	51	223
Java	148	..	633	609	..	1,390
Straits Settlements	224	21	89	457	60	851
Fiji	223	150	111	223	301	1,008
Philippine Islands	5	20	215	158	62	460
Japan	16	15	27	40	71	169
Mauritius .. ..	..	..	150	60	140	350
Papua	35	30	20	1	29	115
Other Countries	78	20	54	177	759	1,088
Total	16,513a	24,172a	8,832a	5,939	8,302	63,758a

(a) Exclusive of shipments for military purposes.

The corresponding particulars relative to the value of the horses exported are given in the next table:—

VALUE OF HORSES EXPORTED FROM THE COMMONWEALTH,
1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	£	£	£	£	£	£
India	312,271	479,520	146,768	84,651	127,891	1,151,091
New Zealand	11,190	16,360	4,600	35,725	15,289	83,164
Java	3,818	..	18,336	14,464	..	36,618
Straits Settlements	6,427	900	5,915	15,192	6,406	34,840
Fiji	5,814	3,765	2,176	5,548	8,570	25,873
Philippine Islands	60	200	3,800	3,330	678	8,068
Japan	850	750	1,350	1,770	3,025	7,745
Mauritius .. ..	..	..	4,334	1,200	1,910	7,444
Papua	663	538	817	10	514	2,542
Other Countries	1,804	524	1,268	4,927	22,660	31,183
Total	342,897a	502,557a	189,354a	166,817	186,943	1,388,568a

(a) Exclusive of shipments for military purposes.

Consequent on the greater demand for remounts for the Indian Army, a large increase took place in the number of horses exported to that country during the four years ended 30th June, 1918. In addition to the exports shown in the above tables, there were 39,348 horses, valued at £815,300, shipped from the Commonwealth for military purposes from the commencement of the war to 30th June, 1918.

The number of horses imported into the Commonwealth is comparatively small, consisting mainly of valuable animals introduced for breeding purposes, and coming principally from New Zealand and the United Kingdom. The average value per head of the horses imported during the last five years was £214 19s. 10d., as compared with £21 15s. 7d. per head for the exports for the same period. The average number imported per annum was, however, only 197, and the average annual value £42,397. The following table furnishes a comparison of imports and exports of horses during each of the five years 1916-17 to 1920-21 :—

**COMMONWEALTH IMPORTS AND EXPORTS OF HORSES,
1916-17 TO 1920-21.**

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value.	No.	Value.
		£		£		£
1916-17	285	36,697	16,513	342,897	16,228	306,200
1917-18	296	48,941	24,172	502,557	23,876	453,616
1918-19	146	27,821	8,832	189,354	8,686	161,533
1919-20	152	49,078	5,939	166,817	5,787	117,739
1920-21	107	49,446	8,302	186,943	8,195	137,497

5. **Comparison with other Countries.**—The numbers of horses in some of the leading horse-breeding countries of the world, according to the latest available returns, are as follows :—

**NUMBER OF HORSES IN SOME OF THE LEADING HORSE-BREEDING
COUNTRIES OF THE WORLD.**

Country.	Date.	Number of Horses. (000 omitted.)	Country.	Date.	Number of Horses. (000 omitted.)
Russia (a) ..	1915-16	34,822	Union of South Africa ..	1919	695
U.S. of America ..	1922	20,805	Denmark	1921	598
Argentine Republic ..	1918	9,061	Spain	1917	558
Brazil	1916	6,065	Uruguay	1916	555
Canada	1921	3,814	Rumania	1919	552
Germany	1920	3,588	Colombia	1915	526
Poland	1921	3,187	Paraguay	1918	490
Australia	1920	2,416	Czecho-Slovakia ..	1919	481
France	1919	2,413	Chile	1918	411
Hungary (b) ..	1911	2,001	Netherlands ..	1919	362
United Kingdom ..	1921	1,903	New Zealand ..	1921	337
British India ..	1918	1,681	Finland	1918	309
Japan	1918	1,511	Java	1915	304
Jugo-Slavia ..	1921	1,059	Latvia	1921	283
Italy	1918	990	Austria	1919	243
Mexico	1902	859	Norway	1918	221
Lithuania	1913	762	Algeria	1914	203
Cuba	1916	750	India (Native States)	1918	203
Sweden	1919	716	Greece	1920	201

(a) Including Caucasus and Siberia. (b) Old boundaries.

6. **Relation to Population.**—In proportion to population, horses are much more numerous in the Northern Territory than in any other of the principal divisions of the Commonwealth. Queensland is next in order, while Tasmania has the smallest number

of horses per head. In all of the States the number of horses per head of population was lower in 1920 than in 1916. Particulars for the past five years are as follows :—

**NUMBER OF HORSES PER HEAD OF POPULATION,
1916 TO 1920.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Terr.	P. Terr.	C'wealth.
1916 ..	0.38	0.37	1.03	0.59	0.55	0.22	4.65	0.57	0.49
1917 ..	0.38	0.36	1.06	0.58	0.58	0.21	5.46	0.58	0.50
1918 ..	0.36	0.36	1.08	0.57	0.58	0.20	6.78	0.60	0.49
1919 ..	0.32	0.34	0.99	0.54	0.53	0.19	7.88	0.68	0.45
1920 ..	0.31	0.32	0.99	0.54	0.54	0.18	9.48	0.52	0.44

§ 3. Cattle.

1. Purposes for which Raised.—In all the States of the Commonwealth, cattle raising is carried out on a more or less extensive scale, the main object in certain districts being the production of stock suitable for slaughtering purposes, and in others the raising of profitable dairy herds. The great impetus which the development of the export trade in Australian butter gave to the dairying industry in the Commonwealth led to a considerable increase in numbers and improvement in quality of the dairy herds of Victoria, New South Wales, and Southern Queensland in particular, the portion of Australia in the temperate zone being the best adapted to this industry. On the other hand, by far the finest specimens of beef-producing cattle are those raised in the tropical districts of the Commonwealth, *i.e.*, in the northern parts of Queensland, in the Northern Territory, and in the Kimberley districts in the north of Western Australia.

2. Distribution throughout Commonwealth.—Until 1880 New South Wales occupied the leading position in the Commonwealth group as a cattle-raising State, but in that year Queensland forged ahead and obtained a lead which it has since maintained. The extent of this lead has, however, varied considerably, owing principally to the effects produced by the tick fever and droughts, from both of which causes the Queensland herds suffered more severely than those of the other States. In fact, during the period from 1894, when the number of cattle in Queensland attained its maximum of rather more than 7,000,000, to 1903, when the number recorded was less than 2,500,000, an uninterrupted decline was experienced. During the next seventeen years, however, despite recurring droughts, a rapid improvement took place, and the total reached on 31st December, 1920, was 6,455,067, the highest number recorded since 1896.

Following the severe drought of 1914–15 an upward movement in numbers has been in evidence in all the States, and, though a temporary check was experienced in 1919, the 1920 Commonwealth total of 13,499,737 represents the greatest number of cattle ever depastured in Australia.

The numbers of cattle in the several States and Territories at decennial intervals from 1860 to 1910 and for each of the last five years are as follows :—

**NUMBER OF CATTLE IN STATES, TERRITORIES, AND COMMONWEALTH,
1860 TO 1920.**

Year.	N.S.W.	Victoria. (a)	Q'land.	S. Aust.	W. Aust.	Tas. (a)	Nor. Terr.	Fed. Terr.	C'wealth.
1860	2,408,586	722,332	432,890	278,265	32,476	83,366	..	..	3,957,915
1870	2,195,096	721,096	1,076,630	136,832	45,213	101,459	..	..	4,276,328
1880	2,580,040	1,286,267	3,162,752	283,315	63,719	127,187	19,720c	..	7,523,000
1890	2,091,229	1,782,978	5,558,264	359,938	130,970	162,440	214,094	..	10,299,913
1900	1,983,116	1,602,384	4,073,191	214,761	338,590	165,516	257,667	..	8,640,225
1910	3,140,307	1,547,569	5,131,699	384,862	825,040	201,854	513,383	..	11,744,714
1916	2,767,713b	1,175,098	4,785,657	288,887b	863,300	179,360	420,362	8,230b	10,459,237
1917	3,148,309b	1,371,049	5,318,558	313,245b	927,086	197,938	541,545	13,408b	11,829,138
1918	3,271,782b	1,596,544	5,786,744	342,768b	943,847	218,234	570,039	8,894b	12,738,852
1919	3,075,954b	1,631,120	5,940,433	349,562b	880,644	214,442	610,534	8,378b	12,711,067
1920	3,867,880b	1,575,159	6,455,067	376,399b	849,803	208,202	659,840	7,387b	13,499,737

(a) 1st March year following. (b) 30th June year following. (c) Statistics not collected prior to 1880.

3. **Proportion in each State.**—Particulars concerning the relative importance of the various cattle-breeding States during the years 1916 to 1920 are as under :—

PERCENTAGE OF CATTLE IN EACH STATE AND TERRITORY ON TOTAL FOR COMMONWEALTH, 1916 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	%	%	%	%	%	%	%	%	%
1916 ..	26.37	11.24	45.56	2.76	8.26	1.71	4.02	0.08	100.00
1917 ..	26.62	11.59	44.94	2.65	7.84	1.67	4.58	0.11	100.00
1918 ..	25.68	12.53	45.43	2.69	7.41	1.71	4.48	0.07	100.00
1919 ..	24.20	12.83	46.73	2.75	6.93	1.69	4.80	0.07	100.00
1920 ..	24.95	11.67	47.82	2.79	6.29	1.54	4.89	0.05	100.00

During the past five years the percentages of cattle in the various States on the Commonwealth total have suffered little change. Queensland has shewn the largest gain, while the principal decreases occurred in Western Australia and New South Wales.

4. **Imports and Exports of Cattle.**—Although the various products of the cattle-raising industry bulk largely in the export trade of the Commonwealth, the export of live cattle from Australia has never been considerable. The number of cattle imported is also small, consisting, as in the case of horses, mainly of valuable animals for breeding. Details are as follows :—

COMMONWEALTH IMPORTS AND EXPORTS OF CATTLE,
1916-17 TO 1920-21.

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value.	No.	Value.
		£		£		£
1916-17 ..	234	14,254	2,977	18,836	2,743	4,582
1917-18 ..	222	23,570	1,339	12,577	1,117	— 10,993
1918-19 ..	66	3,373	710	6,940	644	3,567
1919-20 ..	337	55,656	3,470	31,801	3,133	— 23,855
1920-21 ..	127	10,979	4,523	41,329	4,396	30,350

NOTE.—The minus sign (—) signifies net imports.

The average value of the cattle imported into the Commonwealth during the last five years was £109 7s. 3d. per head, while the average value of the cattle exported during the same period was £8 11s. 3d. As stated previously, the imported cattle were required principally for stud purposes.

5. **Cattle Slaughtered.**—The numbers of cattle slaughtered in the several States and Territories of the Commonwealth during the years 1916 to 1920 are as follows:—

CATTLE (INCLUDING CALVES) SLAUGHTERED IN STATES, TERRITORIES, AND COMMONWEALTH, 1916 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
1916	5393,400	247,781	578,202	663,167	59,072	26,972	24,000	6122	1,372,716
1917	5377,936	217,480	582,954	669,789	50,781	23,521	22,911	687	1,345,459
1918	6437,046	223,340	498,737	673,148	48,707	22,419	31,511	6141	1,335,049
1919	6593,859	362,475	461,197	685,978	55,056	15,753	23,286	6138	1,597,742
1920	6525,981	374,545	449,103	690,944	68,055	27,468	1,330	674	1,537,500

(a) Estimated.

(b) For year ended 30th June of year following.

6 **Export of Beef Preserved by Cold Process.**—A large export trade in beef preserved by cold process is carried on by the Commonwealth in normal times, mainly with the United Kingdom, Egypt, and the Philippine Islands. The quantities so exported during the five years 1916-17 to 1920-21 are as follows:—

QUANTITY OF BEEF PRESERVED BY COLD PROCESS EXPORTED FROM THE COMMONWEALTH, 1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ..	239,384,898	145,300,631	47,056,554	105,725,679	156,316,163	693,783,920
Egypt ..		30,359,072	68,681,034	6,616,637	10,202,633	115,869,376
Straits Settlements ..	1,691,256	1,535,005	1,480,201	2,366,035	3,305,162	10,377,659
Philippine Islands ..	548,398	1,368,713	1,994,336	2,928,722	2,479,724	9,319,893
Hawaiian Islands ..	200,396	502,067	489,640	2,104,769	2,437,185	5,734,007
Italy ..					3,096,341	3,096,341
Hong Kong ..	90,000	98,058	75,791	467,974	849,904	1,581,727
Ceylon ..	83,752	203,823	60,854	405,347	530,636	1,284,412
United States ..			40,086	301,673	133,304	475,063
Other Countries ..	82,991	881,932	111,021	162,075	291,477	1,529,496
Total ..	242,081,686	180,249,301	119,989,517	121,078,911	179,642,479	843,041,894

The value of the beef preserved by cold process exported from the Commonwealth during the same years is as follows:—

VALUE OF BEEF PRESERVED BY COLD PROCESS EXPORTED FROM THE COMMONWEALTH, 1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom ..	4,890,927	2,976,301	958,164	2,130,527	3,302,283	14,258,202
Egypt ..		616,627	1,415,713	133,583	207,643	2,373,566
Straits Settlements ..	34,397	31,819	33,284	53,363	71,090	223,962
Philippine Islands ..	11,139	31,449	44,225	65,331	56,032	208,176
Hawaiian Islands ..	4,358	17,968	14,058	62,818	77,784	176,986
Italy ..					62,575	62,575
Hong Kong ..	1,850	2,032	1,704	10,426	18,563	34,565
Ceylon ..	2,352	4,582	2,130	11,539	13,478	34,081
United States ..			1,023	7,422	3,429	11,874
Other Countries ..	2,047	17,915	2,485	4,239	6,965	33,651
Total ..	4,947,070	3,698,693	2,472,786	2,479,248	3,819,841	17,417,638

During the five years under review, the largest of Australia's customers for beef preserved by cold process has been the United Kingdom, while the second largest customer has been Egypt; the Straits Settlements, the Philippine Islands, and the Hawaiian Islands ranked next in order of importance. The exporting States and Territories during 1920-21 were:—Queensland, 159,404,532 lbs., valued at £3,301,814; New South Wales, 12,401,397 lbs., valued at £346,465; Victoria, 1,911,841 lbs., valued at £42,803; Western Australia, 5,756,126 lbs., valued at £123,865; and South Australia, 168,583 lbs., valued at £4,894.

7. **Comparison with other Countries.**—In the following comparison of the herds of Australia with those of some of the principal cattle-raising countries of the world, the latest available figures have been inserted in each case:—

NUMBER OF CATTLE IN VARIOUS COUNTRIES.

Country.	Date.	No. of Cattle. (,000 omitted.)	Country.	Date.	No. of Cattle. (,000 omitted.)
British India (a)	1918	129,876	Java	1915	3,243
U.S. of America	1922	67,464	New Zealand	1921	3,139
Russia (b)	1915-16	53,145	Colombia	1915	3,035
Brazil	1918	37,500	Denmark	1921	2,591
Argentine Republic	1918	27,392	Sweden	1919	2,551
Germany	1920	16,807	Siam	1916	2,337
Australia	1920	13,500	Chile	1918	2,225
India (Native States) (a)	1918	12,691	Austrian Republic	1920	2,114
France	1919	12,374	Venezuela	1912	2,004
United Kingdom	1921	11,893	Netherlands	1919	1,969
Canada	1921	10,206	British East Africa	1917	1,943
Poland	1921	7,861	Bulgaria	1910	1,603
Uruguay	1916	7,803	Ceylon	1918	1,451
Madagascar	1917	6,676	Switzerland	1921	1,425
Italy	1918	6,240	Finland	1918	1,400
Hungary (c)	1911	6,028	Korea	1917	1,385
Union of South Africa	1919	5,575	Japan	1918	1,307
Paraguay	1918	5,500	Upper Senegal & Niger	1918	1,299
Mexico	1902	5,142	Belgium	1920	1,292
Jugo-Slavia	1921	4,834	Italian Somaliland	1920	1,246
Tanganyika Territory	1912	3,994	Rhodesia	1918	1,211
Cuba	1916	3,962	Western Morocco	1918	1,173
Turkish Empire	1919	3,740	Rumania	1919	1,125
Spain	1918	3,712	Algeria	1914	1,093
Czecho-Slovakia	1919	3,256	Norway	1918	1,054

(a) Including buffalo calves. (b) Including Caucasus and Siberia. (c) Old boundaries.

8. **Relation to Population.**—The number of cattle per head of population differs considerably in the several States, and is also subject to marked variation from year to year in the same State. Particulars for the past five years are as follows:—

NUMBER OF CATTLE PER HEAD OF POPULATION, 1916 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Terr.	F. Terr.	C'wealth.
1916	1.45	0.84	7.03	0.66	2.82	0.90	90.09	3.22	2.12
1917	1.62	0.97	7.73	0.70	3.02	1.00	112.75	5.42	2.36
1918	1.64	1.11	8.20	0.73	3.05	1.08	122.85	3.77	2.48
1919	1.49	1.09	8.05	0.72	2.69	1.02	134.27	3.77	2.38
1920	1.60	1.03	8.58	0.76	2.57	0.98	165.29	2.86	2.49

For the Commonwealth as a whole the ratio of cattle to population has increased since 1916, and the increase has been in evidence throughout the Commonwealth, with the exception of Western Australia and the Federal Territory.

§ 4. Sheep.

1. **The Founding of the Commonwealth Pastoral Industry.**—Fortunately for Australia, the suitability of its climate and general conditions for the production of a high class of wool was, at an early date in the history of its settlement, surmised and tested by Captain Macarthur, one of the pioneer sheep-breeders of New South Wales. To the energy of this enterprising pastoralist is due in large measure the rapid and extremely satisfactory development of Australia as a producer of fine wool, and though it would appear that the introduction of the Merino sheep into Australia was not due to Macarthur, a great deal of the credit for having successfully established the pastoral industry in Australia must certainly be his.

2. **Distribution throughout Commonwealth.**—With the exception of a short period in the early sixties, when the flocks of Victoria outnumbered those of the mother State, New South Wales has maintained amongst the Commonwealth group the lead in sheep production which naturally attached to it as the portion of the Commonwealth in which settlement was first effected. From 1878 to 1901, the number of sheep in New South Wales represented more than half the total for the Commonwealth, but in recent years the proportion has fallen away considerably.

The number of sheep in the several States and Territories at decennial intervals from 1860 to 1910, and for each year from 1916 to 1920, is as follows :—

**NUMBER OF SHEEP IN STATES, TERRITORIES, AND COMMONWEALTH,
1860 TO 1920.**

Year.	New South Wales.	Victoria. (a)	Queens- land.	South Australia.	Western Australia.	Tasmania. (a)	Nor. Terr.	Fed. Terr.	Total C'wealth.
1860	6,110,163	5,780,896	3,449,350	2,824,811	280,136	1,700,930	..	..	20,135,286
1870	16,308,585	10,761,887	8,163,818	4,400,655	608,892	1,349,775	..	..	41,593,612
1880	35,398,121	10,360,285	6,935,967	6,443,904	1,231,717	1,796,715	69,318	..	62,176,027
1890	55,986,431	12,692,843	18,007,234	7,004,642	2,524,913	1,619,256	45,902	..	97,881,221
1900	40,020,506	10,841,790	10,339,185	5,235,220	2,434,311	1,683,956	48,027	..	70,602,995
1910	45,560,969	12,882,665	20,331,838	6,267,477	5,158,516	1,788,310	57,240	..	92,047,015
1916	636,086,241	12,576,587	15,524,293	65,091,282	5,529,960	1,702,579	47,520	6110,142	76,668,604
1917	638,482,465	14,760,013	17,204,268	66,229,519	6,384,191	1,711,116	54,709	6138,731	84,965,012
1918	637,243,770	15,773,902	18,220,985	66,625,184	7,183,747	1,841,924	58,620	6138,104	87,086,236
1919	629,077,514	14,422,745	17,379,332	66,014,565	6,697,951	1,781,425	8,811	6171,739	75,554,082
1920	633,691,838	12,171,084	17,404,840	66,359,944	6,532,965	1,570,832	6,062	6159,990	77,897,555

(a) 1st March year following. (b) 30th June of year following. (c) Statistics not collected prior to 1880.

During the year 1919 the Avon Downs Pastoral Company in the Northern Territory disposed of the whole of their flock numbering about 50,000, and this property is now stocked with cattle only.

3. **Proportion in the Several States and Territories.**—Particulars concerning the relative positions of the several States and Territories with respect to the total flocks of Australia during the years 1916 to 1920 are as hereunder :—

**PERCENTAGE OF SHEEP IN EACH STATE AND TERRITORY ON TOTAL FOR
COMMONWEALTH, 1916 TO 1920.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Terr.	F. Terr.	C'wealth.
	%	%	%	%	%	%	%	%	%
1916 ..	47.07	16.41	20.25	6.64	7.21	2.22	0.06	0.14	100.00
1917 ..	45.29	17.37	20.25	7.33	7.52	2.01	0.07	0.16	100.00
1918 ..	42.77	18.11	20.92	7.61	8.25	2.11	0.07	0.16	100.00
1919 ..	38.49	19.09	23.00	7.96	8.86	2.36	0.01	0.23	100.00
1920 ..	43.25	15.62	22.34	8.16	8.39	2.02	0.01	0.21	100.00

During the period under review the percentage on the total Commonwealth flocks declined in the case of New South Wales and Victoria, whilst Queensland, South Australia, and Western Australia experienced substantial advances.

4. **Oversea Imports and Exports of Sheep.**—As in the case of cattle, the overseas exports of live sheep from Australia are of comparatively small importance. During the past five years the principal consignments of ordinary sheep have been made to the Straits Settlements from the State of Western Australia. The purchases made by South African and Japanese buyers at the Australian Stud Sheep Sales during recent years have opened up a regular export trade with these two countries in stud sheep, the bulk of which have been secured from the leading flocks of New South Wales, Victoria and South Australia. The following are particulars of the imports and exports for the years 1916-17 to 1920-21 :—

COMMONWEALTH IMPORTS AND EXPORTS OF SHEEP, 1916-17 TO 1920-21.

Year.	Imports.		Exports.		Net Exports.	
	No.	Value.	No.	Value.	No.	Value.
		£		£		£
1916-17 ..	3,809	24,470	7,007	32,944	3,198	8,474
1917-18 ..	1,719	9,850	10,799	24,899	9,080	15,049
1918-19 ..	607	4,776	18,608	39,783	18,001	35,007
1919-20 ..	269	6,258	21,870	64,112	21,601	57,854
1920-21 ..	3,038	8,828	22,345	149,803	19,307	140,975

5. **Sheep Slaughtered.**—The numbers of sheep slaughtered in the several States during each of the years from 1916 to 1920 are as follows :—

SHEEP (INCLUDING LAMBS) SLAUGHTERED, 1916 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania. (a)	Nor. Ter.	Fed. Ter.	C'wealth.
1916	63,756,477	2,647,200	909,615	6686,112	547,147	283,313	c500	62,975	8,833,339
1917	63,198,465	2,499,002	689,905	6808,914	590,244	259,287	c500	63,713	8,050,030
1918	64,271,396	3,581,460	542,479	61,137,578	630,117	295,844	c500	63,334	10,462,708
1919	65,533,484	6,324,490	717,191	61,478,557	800,252	330,000	(d)	63,800	15,187,774
1920	63,847,498	4,244,798	461,449	61,058,977	839,963	387,346	(d)	63,765	10,843,796

(a) Partly estimated. (b) Year ended 30th June year following. (c) Estimated.
(d) Not available.

6. **Exports of Mutton and Lamb Preserved by Cold Process.**—Australia's export trade in mutton and lamb preserved by cold process has, in recent years, advanced rapidly. In 1903 the value of exports was £492,114, while eleven years afterwards, in 1914-15, the value amounted to no less a sum than £3,413,848. During the next four years, consequent on drought and war conditions, the value of the exports fell considerably, averaging for the period only £1,015,351 per annum. With the release of shipping and the high prices ruling in England the trade rapidly recovered, and during 1919-20 the record shipment of 246,971,346 lbs., valued at £5,482,564, was made. The dearth of supplies consequent on the recent drought caused the 1920-21 consignments

to drop to 54,893,821 lbs. In all the States considerable attention is now being paid to the breeding of a class of sheep that will best meet the requirements of consumers. Crosses between the Merino and the Lincoln, or between the Merino and the Leicester breeds, have proved exceedingly valuable, as they furnish both a good quality of wool and an excellent carcase for export purposes. The breeding of Shropshire and South-down sheep with a view to combining meat production with that of wool is also on the increase. Special attention is being paid to the raising of lambs, as it has become widely recognised that with suitable breeds the export trade in lambs is very profitable.

As in the case of frozen beef, Australia's principal customer in this trade is the United Kingdom, which has absorbed 92 per cent. of the total quantity exported from the Commonwealth during the past five years, while the balance was shipped mainly to Egypt, the Straits Settlements, and Sweden.

QUANTITY OF MUTTON AND LAMB PRESERVED BY COLD PROCESS EXPORTED FROM THE COMMONWEALTH, 1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ..	65,140,182	9,532,577	49,784,705	239,154,276	47,792,058	411,403,798
Egypt ..	..	8,071,709	8,464,515	..	2,744,246	19,280,470
Straits Settlements ..	964,335	824,406	754,089	1,102,058	1,228,087	4,873,575
Sweden ..	..	..	..	2,119,602	1,217,551	3,337,153
Ceylon ..	284,130	252,716	189,875	383,518	398,214	1,508,453
Union of South Africa ..	..	..	..	1,578,839	193,709	1,772,548
Hong Kong ..	272,450	144,789	195,881	376,315	410,329	1,399,764
Philippine Islands ..	35,608	122,963	194,843	595,312	237,264	1,185,990
Canada ..	..	199,092	..	273,047	37,427	509,566
United States ..	..	..	..	148,804	124,535	272,339
Other Countries ..	116,104	27,058	103,547	1,239,475	510,401	1,996,585
Total ..	66,812,809	19,175,310	59,687,455	246,971,346	54,893,821	447,540,741

The corresponding particulars concerning the values of the exports are :—

VALUES OF FROZEN MUTTON AND LAMB EXPORTED FROM THE COMMONWEALTH, 1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom ..	1,496,658	213,710	1,082,646	5,292,542	1,393,179	9,478,735
Egypt ..	..	194,199	176,551	..	64,409	435,159
Straits Settlements ..	25,534	23,885	20,796	30,599	36,980	137,794
Sweden ..	..	..	..	49,303	29,805	79,108
Ceylon ..	7,250	7,103	5,058	10,401	11,784	41,596
Union of South Africa ..	..	..	..	34,788	4,535	39,323
Hong Kong ..	7,210	4,072	5,399	10,201	12,352	39,234
Philippine Islands ..	965	3,425	5,395	14,709	6,595	31,089
Canada ..	..	5,471	..	8,675	955	15,101
United States ..	..	..	..	3,603	4,684	8,287
Other Countries ..	2,955	782	2,586	27,743	13,380	47,446
Total ..	1,540,572	452,647	1,298,431	5,482,564	1,578,658	10,352,872

7. **Comparison with other Countries.**—As regards the size of its flocks, and the quantity and quality of wool produced, Australia has long occupied a leading position amongst the sheep-raising countries of the world. From estimates published in the Year Book of the United States Department of Agriculture it would appear that the approximate number of sheep in the world is in the neighbourhood of 550,000,000, to which total Australia contributes about 14 per cent. The following comparison taken mainly from the same source gives the latest available figures relative to the number of sheep in the principal wool-producing countries : —

NUMBER OF SHEEP IN VARIOUS COUNTRIES.

Country.	Date.	No. of Sheep. (,000 omitted.)	Country.	Date.	No. of Sheep. (,000 omitted.)
Australia	1920	77,898	Hungary (c)	1913	6,560
Russia (a)	1914	71,708	Tanganyika Territory(b)	1912	6,440
Argentine Republic ..	1918	45,309	Germany	1920	6,150
U. S. of America ..	1922	36,499	Greece	1920	5,811
Union of South Africa	1919	28,492	Morocco	1916-18	4,858
United Kingdom ..	1921	24,273	Chile	1918	4,434
New Zealand	1921	23,285	Portugal	1920	3,851
British India	1918	22,895	Canada	1921	3,676
Spain	1918	18,601	Mexico	1902	3,424
Italy	1918	11,754	Tunis	1919	2,662
Uruguay	1916	11,473	Upper Senegal and		
Turkey	1919	11,200	Niger	1918	2,161
Algeria	1914	9,140	Poland	1921	2,093
India (Native States) (b)	1918	9,139	Sweden	1919	1,564
France	1919	8,991	Bolivia	1912	1,499
Bulgaria	1910	8,632	Basutoland	1911	1,369
Rumania	1916	7,811	Finland	1910	1,309
Brazil	1916	7,205	Norway	1918	1,185
Jugo-Slavia	1921	6,773	Latvia	1921	1,132
British East Africa ..	1916	6,565	French Equatorial Africa	1918	1,000

(a) Including Caucasus and Siberia.

(b) Includes goats.

(c) Old boundaries.

8. **Relation to Population.**—The relation of the flocks of the several States and Territories to the population at the end of each year from 1916 to 1920 is as follows :—

NUMBER OF SHEEP PER HEAD OF POPULATION, 1916 TO 1920.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	F.T.	C'wealth.
1916 ..	18.96	8.95	22.90	11.58	18.04	8.70	10.18	43.09	15.53
1917 ..	19.83	10.41	25.02	13.82	20.83	8.64	11.39	56.10	16.97
1918 ..	18.66	10.97	25.83	14.14	23.19	9.08	12.63	58.59	16.99
1919 ..	14.07	9.59	23.56	12.36	20.46	8.48	1.94	77.29	14.15
1920 ..	16.03	7.96	23.14	12.78	19.75	7.38	1.52	62.04	14.35

A comparison of the ratios of sheep to population for 1920 with those for 1916 discloses increases in Queensland, South Australia, Western Australia and the Federal Territory, while the ratios have decreased in New South Wales, Victoria and Tasmania.

§ 5. Wool.

1. **Importance of Wool Production.**—The chief contributing factor to the pastoral wealth of Australia is the production of wool, the value of the output for the season ended 30th June, 1921, being about £32,856,000. The bulk of the wool produced in the Commonwealth is exported, but with the greater activity of the local woollen mills there has, in recent years, been an increasing quantity used in Australia, although even now the quantity so used represents only about 3 per cent. of the whole clip.

2. **Greasy and Scoured Wool.**—For the purpose of comparing the clips of the several States or of the Commonwealth as a whole for a series of years, it is convenient to have the total production expressed in terms of greasy wool.

The quantity of Australian wool scoured and washed before export during recent years has been on the average about 20 per cent. of the total clip. The loss of weight in scouring varies largely with season, locality, breed, and condition. It seems preferable to express "scoured and washed" wool in terms of "greasy" rather than vice versa, since the absolute error arising from uncertainty as to average loss of weight has thus the less effect.

In the following tables relative to the production of wool, "scoured and washed" wool has been converted into the estimated equivalent amount of "greasy" wool, on the assumption that two pounds of "greasy" wool are on the average required to produce one pound of "scoured and washed" wool.

3. **Total Production.**—The estimated production of wool in the several States, formerly based on the Customs returns, being no longer available from that source, an effort has been made to arrive at approximate figures from data collected by the State Statisticians from growers, fellmongers, etc. Particulars for years prior to 1916-17 will be found in earlier issues (see Year Book No. 6, page 346, and No. 10, page 306). The following table gives the estimates obtained in reference to the five seasons ended 30th June, 1917 to 1921:—

ESTIMATED QUANTITY OF WOOL AS IN THE GREASE, SHORN, FELLMONGERED OR ON SKINS SHIPPED DURING THE SEASONS ENDED 30th JUNE, 1917 TO 1921.

State.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales (a)	270,525,000	284,188,000	305,613,000	296,641,000	240,231,000
Victoria ..	94,845,024	105,424,682	126,647,061	132,847,167	90,250,571
Queensland ..	102,220,125	87,425,558	113,777,272	118,035,461	114,809,983
South Australia ..	35,050,865	46,339,339	55,947,108	58,306,918	48,953,503
Western Australia ..	34,199,682	39,701,357	45,317,271	46,299,381	43,714,630
Tasmania ..	10,441,978	9,927,044	10,279,998	11,069,237	9,503,048
Northern Territory (b)	350,000	330,000	330,000	50,000	40,000
Commonwealth ..	547,632,674	573,335,980	657,911,710	663,249,164	547,502,715

(a) Including Federal Territory. (b) Approximate figures.

It is to be noted that a shortage has apparently occurred in the collection of these statistics, the estimates falling considerably below the approximate totals obtained from oversea shipments of wool and skins, together with the quantity used in local manufactories. For the three seasons ended 30th June, 1914, this average annual shortage amounted to nearly 46,000,000 lbs. of wool. The abnormal conditions of wool

shipment obtaining during the last seven seasons do not admit of any similar comparisons being made. The appraisement figures of the Central Wool Committee, however, furnish further evidence of shortage in the figures supplied by the State Statisticians for the three seasons ended 30th June, 1920. During these years the total appraisements amounted to 2,094,261,297 lbs., thus revealing an average annual deficit of 66,469,057 lbs. in the estimated production for those seasons based on the State Statisticians' returns.

The weight and value of wool per sheep shorn in the past five seasons is shewn in the following table :—

ESTIMATED WEIGHT AND VALUE OF WOOL PER SHEEP SHORN FOR THE SEASONS ENDED 30th JUNE, 1917 TO 1921.

Season ended 30th June.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
WEIGHT.							
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1917	7.39	6.26	7.00	7.47	5.82	5.79	6.96
1918	7.08	6.19	6.91	7.52	6.17	5.38	6.80
1919	7.13	6.21	6.30	7.41	6.09	5.09	6.63
1920	7.03	6.38	6.59	7.89	5.71	5.32	6.73
1921	6.93	5.77	7.03	7.56	5.76	5.19	6.65
VALUE.							
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1917	9 8	8 8	9 2	9 0	6 11	9 3	9 2
1918	8 9	8 6	9 7	9 1	7 11	8 5	8 9
1919	8 11	8 3	8 10	9 0	7 4	7 9	8 7
1920	8 10	8 4	9 3	9 3	7 1	8 3	8 9
1921	7 11	7 10	8 9	8 6	6 3	7 3	8 0

4. Wool Locally Used.—The quantity of wool used in the manufactories of the several States of the Commonwealth during the past five years was approximately as follows :—

LOCALLY USED WOOL (Estimated as "Greasy"), 1917 TO 1920-21.

State.	1917.	1918.	1918-19.	1919-20.	1920-21.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales	26,556,988	26,118,000	6,769,284	7,054,962	7,206,896
Victoria	28,669,460	27,344,035	7,823,050	11,300,400	12,799,593
Queensland	304,091	268,917	268,917	634,376	556,232
South Australia	6995,164	2734,723	654,758	693,297	683,779
Western Australia .. ..	..	..	..	..	..
Tasmania	1,172,000	1,301,006	1,301,006	997,542	1,129,722
Commonwealth	17,697,703	15,766,681	16,817,015	20,680,577	22,376,222

(a) Year ended 30th June.

5. Bounties on Combed Wool or Tops Exported.—The details of the provisions and operations of the Bounties Act 1907, relative to Australian combed wool or tops exported, are contained in previous issues of the Year Book. During the eight years ended 31st December, 1915, in which the bounties were payable, a sum of £70,001 was paid on 17,990,131 lbs. of wool tops produced.

Figures shewing the exports of wool tops for the years 1916-17 to 1920-21 inclusive will be found on the next page.

6. **Exports of Wool.**—Prior to the war, about 31 per cent. of the exports of wool from the Commonwealth was despatched to the United Kingdom, whereas the shipments for the same destination during the past five years have averaged 73½ per cent. The other leading consignees for the last five years were the United States of America, Japan, Italy, Belgium, and France. The following table shews for the years 1916-17 to 1920-21 the quantities of “greasy” wool exported from the Commonwealth and the principal countries to which consigned :—

COMMONWEALTH EXPORTS OF WOOL IN THE GREASE, 1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ..	283,446,361	139,113,437	352,282,663	397,688,435	283,583,260	1,456,114,156
United States of America ..	16,174	57,425,217	71,776,334	28,326,008	34,291,220	191,834,953
Italy ..	25,608,163	17,641,985	10,036,918	44,597,155	15,975,186	113,859,407
France ..	12,254,213	5,675,577	3,719,125	32,243,017	32,484,058	86,375,990
Belgium ..	..	..	..	39,189,760	26,021,710	65,211,470
Japan ..	16,839,727	2,919,477	5,319,577	8,928,971	9,856,174	43,863,926
Egypt ..	..	15,522,281	10,950,893	..	..	26,473,174
Canada ..	727,923	4,726,317	3,152,424	..	362,915	8,969,579
Germany ..	..	..	..	..	8,715,299	8,715,299
India ..	297,218	778,286	795,792	..	381,516	2,252,812
Other Countries ..	32,471	..	..	1,360,782	6,228,693	7,621,951
Total ..	339,222,250	243,802,577	458,033,726	552,334,128	417,900,036	2,011,292,717

Similar particulars concerning the exports of “scoured and washed” wool are as follows :—

**COMMONWEALTH EXPORTS OF “SCOURED AND WASHED” WOOL (a),
1916-17 TO 1920-21.**

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
United Kingdom ..	46,917,307	59,247,374	103,261,254	70,454,411	43,100,788	322,981,064
Belgium ..	..	..	..	13,931,527	10,648,048	24,579,575
Japan ..	5,081,183	4,779,081	3,447,825	3,676,467	3,719,499	20,704,055
United States of America ..	154,172	1,446,501	1,460,294	2,600,657	6,490,418	12,152,042
Italy ..	2,651,922	475,914	..	..	568,690	3,696,526
France ..	1,016,397	62,148	27,239	105,177	1,544,101	2,755,062
Egypt ..	..	1,074,558	35,780	..	..	1,110,338
India ..	299,060	51,664	216,326	..	130,260	697,310
Germany ..	..	..	..	..	279,822	279,822
Other Countries ..	567,059	299,490	687,271	282,537	1,642,802	3,479,159
Total ..	56,687,100	67,436,730	109,135,989	91,050,776	68,124,378	392,434,973

(a) Including “tops.”

The figures for “scoured and washed wool” include tops, amounting in 1916-17 to 4,869,452 lbs., valued at £1,204,570; in 1917-18, 4,571,357 lbs., valued at £1,510,799; in 1918-19, 2,822,578 lbs., valued at £935,212; in 1919-20 6,148,118 lbs., valued at £2,567,679; and in 1920-21, 6,598,681 lbs., valued at £2,049,588. The total exports of wool tops during the last five years amounted to 25,010,186 lbs., valued at £8,657,848, of which 18,824,633 lbs., or more than 75 per cent., were shipped to Japan.

The total value of the wool exported from the Commonwealth to the principal countries during the five years under review was :—

**TOTAL VALUE OF WOOL EXPORTED FROM THE COMMONWEALTH,
1916-17 TO 1920-21.**

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom ..	23,431,942	15,648,660	34,563,566	37,256,915	21,889,438	132,790,521
United States of America ..	13,513	4,389,755	4,982,056	2,516,142	3,836,987	15,738,453
Japan ..	2,470,414	1,796,089	1,400,192	2,010,732	2,107,473	9,784,900
Italy ..	1,845,861	1,005,058	548,142	2,832,951	1,164,280	7,396,292
Belgium ..	..	..	..	3,356,349	2,380,519	5,736,868
France ..	963,097	372,453	304,410	2,352,749	1,357,358	5,350,067
Egypt ..	..	939,149	613,814	..	..	1,552,963
Canada ..	77,267	338,087	238,924	63,520	79,588	797,386
Germany ..	..	..	..	..	364,196	364,196
India ..	87,860	66,780	78,336	..	45,198	278,174
Other Countries ..	63,384	30,833	37,315	154,445	555,723	841,700
Total ..	28,953,338	24,586,864	42,766,755	50,543,803	33,780,760	180,631,520

7. Care Needed in Comparing Clips.—The Customs returns prior to 1914-15 do not furnish a reliable indication of increase or decrease in successive clips, since in each case they relate to the year ended 31st December, and include imports and exports of wool belonging to two distinct clips. A further defect in the comparability of successive clips is due to the circumstance that owing to climatic or other conditions, the time of shearing may be so far delayed that one clip may include almost thirteen months' growth of wool, while the succeeding one may include little more than eleven months' growth.

8. Wool-producing Countries in Southern Hemisphere.—The next table, compiled by one of the leading English wool-broking firms, furnishes interesting evidence of the relative importance of the three great wool-producing areas of the Southern Hemisphere. The figures given are the latest available, and represent for the respective years the imports of wool into Europe and North America :—

**IMPORTS OF WOOL INTO EUROPE AND NORTH AMERICA,
1912 TO 1921.**

Year.	Australia and New Zealand.	Cape Colony.	River Plate.	Total.	Average Value of Australasian and Cape Bales.
	Bales.	Bales.	Bales.	Bales.	£
1912 ..	2,463,000	463,000	497,000	3,423,000	15.0
1913 ..	2,296,000	484,000	437,000	3,217,000	16.5
1914 ..	2,332,000	499,000	406,000	3,237,000	17.0
1915 ..	2,157,000	519,000	378,000	3,054,000	19.0
1916 ..	1,919,000	500,000	344,000	2,763,000	27.0
1917(a) ..	..	..	..	..	32.5
1918(a) ..	..	..	..	..	..
1919(a) ..	..	..	..	..	47.0
1920(a) ..	..	..	..	..	52.0
1921(a) ..	..	..	..	..	18.0

(a) No figures are obtainable since 1916 other than the average value of bale.

As the River Plate bale is much larger than the Australasian or Cape bale, a comparison of the number of bales is somewhat misleading. Allowing approximately for the difference in size of the several bales, it may be said that during the five years shewn above the importations from Australia and New Zealand represented about 65 per cent. of the total.

9. **United Kingdom Importation of Wool.**—The quantity and value of wool imported into the United Kingdom during the year 1920 from the principal wool-producing countries discloses the premier position which the Commonwealth occupies in the supply of wool to the mother country. This is shewn in the following table :—

IMPORTS OF WOOL INTO THE UNITED KINGDOM, 1920.

Country from which Imported.	Quantity.	Value.	Country from which Imported.	Quantity.	Value.
	lbs.	£		lbs.	£
Australia ..	571,103,300	52,960,346	Uruguay ..	6,526,500	870,616
New Zealand ..	161,600,500	12,545,997	U.S. of America	7,812,600	857,724
Union of S. Africa	63,247,500	7,346,457	Falkland Is-		
Argentina Re-			lands ..	8,016,700	718,542
public ..	48,353,200	4,960,958	Turkey ..	6,476,000	508,974
British India ..	76,585,500	2,776,176	Other Coun-		
Belgium ..	12,954,000	1,993,190	tries ..	18,098,300	1,750,284
Chile ..	17,949,900	1,861,020			
France.. ..	10,302,100	1,719,746	Total ..	1,009,026,100	90,870,030

It will be seen that of the total importations of wool into the United Kingdom, Australian wool represented 57 per cent. of quantity and 58 per cent. of value, and New Zealand 16 per cent. of quantity and 14 per cent. of value. It is interesting to note that a total of 884,598,000 lbs., valued at £76,593,508, was received from British Possessions, being 88 per cent. of the total weight imported and 84 per cent. of the total value.

10. **World's Wool Production.**—The following table compiled by the Textile Division of the United States Department of Commerce, furnishes statistical evidence of the importance of Australia as a wool-producing country. Out of a total production of 2,608,445,050 lbs. in 1921 Australia's contribution amounted to 631,290,000 lbs., or nearly one quarter of the world's supply.

WORLD PRODUCTION OF WOOL.(a)

Countries.	Average Annual Pre-War Production. (b).	Production.	
		1920.	1921 (c).
NORTH AMERICA.			
	lbs.	lbs.	lbs.
United States	314,110,000	302,207,000	224,564,000
Canada	11,210,000	24,422,531	24,050,000
Mexico	7,000,000	750,000	500,000
Total	332,320,000	327,379,531	249,114,000
Central America and West Indies ..	1,000,000	750,000	750,000
SOUTH AMERICA.			
Argentine Republic	358,688,000	308,560,000	286,000,000
Brazil	35,000,000	27,000,000	27,000,000
Chile	17,430,000	33,069,000	33,069,000
Peru	9,940,000	9,420,000	12,000,000
Falkland Islands	4,324,000	3,200,000	3,200,000
Uruguay	156,968,000	100,000,000	95,000,000
All other	5,000,000	5,000,000	5,000,000
Total	587,350,000	486,249,000	461,269,000

(a) Computed on greasy basis. (b) Average for years 1909 to 1913 inclusive. (c) Where 1921 figures were not obtainable an earlier figure or an unofficial estimate has been inserted.

WORLD PRODUCTION OF WOOL(a)—continued.

Countries.	Average Annual Pre-War Production.(b).	Production.	
		1920.	1921 (c).
EUROPE.			
Austria	15,360,000	..	..
Belgium	1,060,000	825,000	1,205,000
Bulgaria	23,700,000	17,802,365	17,636,800
Czecho-Slovakia .. .. .	..	5,952,420	5,952,420
Denmark	3,508,000	3,508,000	3,508,000
Finland .. .. .	..	3,250,000	3,250,000
France	80,688,000	39,400,000	39,400,000
Germany	25,600,000	37,278,242	42,975,000
Greece	14,000,000	16,000,000	16,000,000
Hungary	26,240,000	25,516,000	25,516,000
Iceland	1,980,000	1,980,000	1,980,000
Italy	35,000,000	50,000,000	50,000,000
Jugo-Slavia	25,446,000	48,859,000	23,800,000
Netherlands	3,556,000	5,500,000	5,500,000
Norway	8,160,000	7,247,000	7,247,000
Poland .. .. .	..	6,724,030	6,724,030
Portugal	10,000,000	6,232,000	6,232,000
Rumania	13,228,000	13,228,000	14,000,000
Russia	320,000,000	150,000,000	150,000,000
Spain	52,000,000	142,000,000	165,347,000
Sweden	6,060,000	5,354,000	5,354,000
Switzerland	1,049,000	1,049,000	800,000
Turkey	28,000,000	..	..
United Kingdom	150,000,000	100,000,000	101,100,000
Total	844,635,000	687,705,057	693,527,250
ASIA.			
British India	60,000,000	60,000,000	60,000,000
China	50,000,000	50,000,000	50,000,000
Persia	12,146,000	12,146,000	12,146,000
Russia in Asia	60,000,000	45,000,000	45,000,000
Turkey in Asia	90,000,000	60,000,000	60,000,000
All other	1,000,000	1,000,000	1,000,000
Total	273,146,000	228,146,000	228,146,000
AFRICA.			
Algeria	35,221,000	33,184,000	33,184,000
British South Africa	157,761,470	127,176,800	127,176,800
Tunis	3,735,000	3,735,000	3,735,000
All other	13,000,000	13,000,000	13,000,000
Total	209,717,470	177,095,800	177,095,800
OCEANIA.			
Australia	705,146,000	547,502,715	631,290,000
New Zealand	198,474,000	181,480,000	167,153,000
All other	100,000	100,000	100,000
Total	903,720,000	729,082,715	798,543,000
Grand Total	3,151,888,470	2,636,408,103	2,608,445,050

(a) Computed on greasy basis. (b) Average for years 1909 to 1913 inclusive. (c) Where 1921 figures were not obtainable an earlier figure or an unofficial estimate has been inserted.

11. **The Wool Market.**—(i) *Purchase by British Government.* Particulars of the scheme under which the British Government purchased Australian wool were given in previous issues of the Year Book. Owing to the demand for wool for British and Allied military clothing the British Government decided to acquire the Australian clips for the seasons 1916-17 to 1919-20 at the flat rate of 15½d. per pound greasy—an increase of 55 per cent. on the prices ruling in the season immediately preceding the war, viz., 1913-14. An arrangement was subsequently made with reference to the later purchases whereby the growers should participate to the extent of 50 per cent. in profits made by the Imperial Government on sales of wool for civilian purposes. The control of the scheme was placed in the hands of a body called the Central Wool Committee, assisted by a committee in each State. These committees consisted of representatives of the wool growers, wool sellers, wool buyers, manufacturers, and scourers or fellmongers. In addition, the Central Wool Committee had a Government nominee who acted as Chairman. The broad policy laid down was that existing trade conditions were not to be disturbed; this meant that the carrying out of the details of the scheme was left to the trade itself. The wool was prepared, catalogued and shewn in the usual way, but instead of being sold by public auction, it was valued by duly appointed Government Wool Appraisers, according to a table of limits prepared by a body of experts acting as an Advisory Board to the Central Wool Committee. On appraisal the wool became the property of the Imperial Government, and was shipped as freight space became available, the allotment of freight being on the basis of the quantity of wool appraised in each State.

Funds received from the British Government were used to effect a payment of 90 per cent. of the appraised price to wool brokers for distribution to the growers within fourteen days from the final date of each series of appraisements. The balance of 10 per cent. was withheld for possible adjustments. The money so retained was placed at interest, the earnings being added to the amount available for final distribution.

The total quantity of wool appraised under the control of the Central Wool Committee since the inception of the scheme in November, 1916, to 30th June, 1920, the date of termination, was as follows:—

WOOL APPRAISED UNDER THE CONTROL OF THE CENTRAL WOOL COMMITTEE, 1916-17 TO 1919-20.

Season ended 30th June.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
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TOTAL QUANTITY, ON GREASY BASIS, OF WOOL APPRAISED.

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1917 (a) ..	158,412,247	112,369,332	70,316,116	23,337,744	18,353,414	9,579,648	392,368,501
1918 ..	263,375,038	168,533,204	118,689,484	62,075,970	41,473,524	10,146,213	664,293,433
1919 ..	269,536,025	201,017,291	114,781,383	62,873,893	46,030,078	10,521,018	704,759,688
1920 ..	266,347,330	205,852,590	124,659,489	73,032,403	44,029,729	11,286,635	725,208,176
Total ..	957,670,640	687,772,417	428,446,472	221,320,010	149,886,745	41,533,514	2,486,629,798

TOTAL VALUE AT BRITISH IMPERIAL GOVERNMENT'S PURCHASE PRICE OF 15½d. PER LB. (FLAT RATE).

	£	£	£	£	£	£	£
1917 (a) ..	10,085,355	7,443,985	4,513,584	1,339,831	1,204,023	753,568	25,340,346
1918 ..	16,161,924	11,426,905	8,177,356	3,711,546	2,641,612	782,622	42,901,665
1919 ..	16,856,209	13,313,876	7,952,945	3,818,345	2,773,546	800,613	45,515,534
1920 ..	16,792,399	13,373,662	8,776,514	4,288,281	2,736,065	869,440	46,836,361
Total ..	59,895,887	45,558,428	29,420,399	13,158,003	9,355,246	3,206,243	160,594,206

(a) Portion of clip only.

WOOL APPRAISED UNDER THE CONTROL OF THE CENTRAL WOOL COMMITTEE, 1916-17 TO 1919-20—continued.

Season ended 30th June.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wealth.
AVERAGE VALUE PER LB.							
	d.	d.	d.	d.	d.	d.	d.
1917 (a) ..	15.28	15.90	15.40	13.78	15.74	18.88	15.50
1918 ..	14.73	16.27	16.53	14.35	15.28	18.51	15.50
1919 ..	15.01	15.89	16.63	14.58	14.46	18.26	15.50
1920 ..	15.13	15.59	16.89	14.09	14.91	18.49	15.50
Total ..	15.01	15.90	16.48	14.27	14.98	18.53	15.50

(a) Portion of clip only.

(ii) *The 1920-21 Season.* The wool trade passed through a year of great difficulty in 1920-21, and the results were unsatisfactory to all sections of the industry. It was the first season after the acquisition of the whole of the wool production on account of the British Government, and was looked to as a return to wool selling through the ordinary channels of trade. When sales were resumed, however, it soon became apparent that the bulk of the wool could not be realized at reasonable prices. Economic factors had depressed the markets of the world, and this depression was reflected in the demand for wool. The huge stocks of wool which had accumulated under the Imperial Purchase Scheme were a further menace to the disposal of the incoming clip. Enormous quantities of low-priced wools were available, and though the millions of Europe required cheap woollen textiles and other woollen goods the European exchanges prevented the removal of any appreciable quantities by making the conversion charges too costly.

In addition to these drawbacks, the 1920-21 clip was grown under very adverse pastoral conditions which rendered the bulk of the staple thin, tender, dusty, and otherwise faulty. Not only was the season's wool production below the standard of average years but it was far more costly to produce. So bare were the pastures over large areas of wool-growing country that it became necessary for pastoralists either to pay exceptionally high prices for agistment country, or to hand-feed with fodder at famine rates.

During the season the quantity of wool sold in the Commonwealth only totalled 791,409 bales, valued at £13,114,997; compared with 2,045,912 bales, valued at £46,192,087, in the previous year; a decrease of 1,254,503 bales in the quantity and £33,077,090 in the value. At the commencement of the season scoured merino skin wools and super greasy merino of good length were in great demand, and record prices were paid for choice clips, while crossbred and faulty merinos were either neglected or prices bid below appraisement levels. Greasy merino fleece from the northern and southern tablelands of New South Wales, and the Western District of Victoria, sold from 38d. to 42d., and, in occasional instances, as high as 49½d., compared to 28d. to 31d., and, in odd cases, to 31½d. under the appraisement scheme. These high rates for super wools, however, did not last throughout the year; the market sagged even for good to super wools in the second half of the season when the special orders were filled, and at the March sales values for the best wools dropped 20 per cent., and the prices realized were about on a par with appraisement rates, while faulty merino and all but the very best crossbred were practically unsaleable. There was a fair demand for good to super merino, but very little for other descriptions, with the result that of the 791,409 bales sold 666,628, or more than 84 per cent., were merino wools.

Despite the unfavourable season a notable feature of the sales was the record prices obtained for greasy and scoured merino wools—prices far in advance of previous records. Greasy merino fleece sold to 49½d., and scoured merino fleece to 64d., being 16d. and 15d. respectively per lb. above the previous highest prices realized at auction or appraisement in the Commonwealth markets. The record prices for the past nine seasons for wools

sold at auction, or made by appraisement at selling centres in the Commonwealth of Australia, are as follow :—

RECORD PRICES OBTAINED FOR WOOL IN AUSTRALIAN MARKETS, 1912-13
TO 1920-21.

Description.	Price.	Brand.	Bales.	Selling Centre.	Season.
	d.				
Greasy merino :					
Fleece ..	49½	Ware (conj.) ..	5	Geelong ..	1920-21
Broken ..	32	Ware (conj.) ..	5	Geelong ..	1920-21
Pieces ..	27	R/Carngham ..	13	Geelong ..	1920-21
Bellies ..	24½	Plains ..	..	Geelong ..	1916-17
Stained pieces ..	18	CWL Lower Thornville ..	..	Brisbane ..	1918-19
Locks ..	13	MP (conj.) ..	..	Western Australia	1917-18
Lambs ..	29½	R/Carngham ..	..	Geelong ..	1913-14
Greasy comeback :					
Fleece ..	37½	North Station ..	6	Geelong ..	1920-21
Lamb ..	24½	JM/Table Top ..	1	Albury ..	1917-18
Greasy crossbred :					
Fleece ..	30½	CLF/Warrowie ..	13	Geelong ..	1920-21
Lamb ..	23½	JM/Table Top ..	3	Albury ..	1919-20
Scoured merino :					
Fleece ..	64	WG/Kedron ..	58	Brisbane ..	1920-21
Pieces ..	40½	M/Moselle Downs ..	3	Brisbane ..	1919-20
Lambs ..	44	PB & Co/Notus Downs	4	Brisbane ..	1919-20
Scoured crossbred :					
Fleece ..	40½	O'Beirne/Linton ..	..	Geelong ..	1917-18

(iii) *Wool Realization Scheme.* The British Australian Wool Realization Association Ltd. ("Bawra") was formed on 27th January, 1921, for the purpose of selling, in conjunction with the present clip, 50 per cent. of the Australian carry-over wool acquired by the Association on account of the Australian growers, also, as agents, all carry-over wools owned by the British Government, consisting of New Zealand, Falkland Islands, South African and 50 per cent. of Australian wools as promptly as market conditions would permit, and to the best advantage, while at the same time contributing to stabilize the wool market which had become demoralized on the return to free wool sales.

The assets of the Association consisting of cash, wool and other assets were capitalized at £22,000,000, and, subject to certain reservations, each supplier of the Australian wool during the British Government purchase scheme was allotted negotiable documents in proportion to the appraised value of the wool which he contributed.

The details of wool owned and controlled by B.A.W.R.A. at the 1st January, 1921, were as follows :—

Wool Owned by B.A.W.R.A.					Wool Owned by British Government.	
					Bales.	Bales.
Australian :—						
Merino ..	..	..	..	452,090	452,090	
Crossbred ..	..	..	..	465,912	465,913	
				918,002		918,003
New Zealand :—						
Merino ..	..	..	..	..	3,181	
Crossbred ..	..	..	..	..	769,762	
						772,943
Falkland Islands	..	..	..	..		2,329
Total ..	..	..	..	918,002		1,693,275
Grand Total ..				2,611,277 bales.		

Towards the end of the year, 1921, 80,550 bales of South African wool owned by the British Government were handed over to the Association for disposal under the Agency Agreement.

The marketing of B.A.W.R.A. wools has been successfully carried out at various centres in England, and on the Continent, and during the eighteen months ended 30th June, 1922, 1,391,221 bales were disposed of, leaving the stocks on hand at that date 1,300,606 bales, consisting of 205,043 bales of merino and 1,095,563 bales of crossbred. The details of stocks and disposals are set out in the following table :—

STOCKS AND DISPOSALS OF B.A.W.R.A. WOOLS 31ST DECEMBER, 1920, TO 30TH JUNE, 1922.

Description.	Stocks, 31st December, 1920.	Disposals, 1st January, 1921, to 30th June, 1922.	Stocks, 30th June, 1922.
Australian :—	Bales.	Bales.	Bales.
Merino.. .. .	904,180	701,653	202,527
Crossbred	931,825	281,684	650,141
New Zealand :—			
Merino.. .. .	3,181	665	2,516
Crossbred	769,762	342,664	427,098
Falkland Islands	2,329	2,329	..
South African	80,550 (a)	62,226	18,324
Grand Totals	2,691,827	1,391,221	1,300,606

(a) South African wool was not controlled by B.A.W.R.A. until the end of the year 1921.

On the 30th July, 1921, 47.5 per cent. of the value of Priority Wool Certificates, equal to £4,750,000, was retired. On the same date, the interests of those wool-growers whose wool was of an appraised value of £100, or less, and fractional share interests, were retired on a cash basis involving a payment of £249,696 11s. 10d. With the payment on the 18th May, 1922, of the balance of 52.5 per cent., equal to £5,250,000, less payments in respect of small interests, a total distribution of £10,000,000 was effected. Thus, within sixteen months of the foundation of the Association, the whole of the Priority Wool Certificates have been redeemed.

12. Average Export Value.—The average values per lb. of Australian greasy wool according to the export returns for the past five years have been as follows :—

EXPORT VALUE PER LB. OF AUSTRALIAN GREASY WOOL, 1916-17 TO 1920-91.

Year	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	d.	d.	d.	d.	d.
Average value per lb.	15.81	16.71	16.49	16.69	14.53

13. Exports of Wool from each State, and Quantity sold Locally. Over 86½ per cent. of the wool grown in Australia was sold in the local markets prior to export from the Commonwealth during 1913-14. Under normal conditions prior to the war buyers from the United Kingdom, France, Germany, and other European countries, also from America, Japan, China, and India, attended the sales conducted in Sydney, Melbourne, Geelong, Brisbane, Adelaide, Fremantle, Hobart, and Launceston.

The following table shows the number of bales of wool exported overseas from each State during the season ended 30th June, 1921, and bales sold for shipment, for use in local woollen mills, for scouring, etc. It must be noted that as considerable quantities of wool grown in some States are sold in or shipped from others, these figures do not shew actual local production, but total overseas shipments and sales. The estimated quantity of wool produced in each State is given on page 222.

EXPORTS OF WOOL TO PLACES OUTSIDE THE COMMONWEALTH, AND THE QUANTITY SOLD IN THE SEVERAL STATES, DURING THE SEASON ENDED 30th JUNE, 1921.

State.	Overseas Exports.		Local Sales.	
	Bales.	%	Bales.	%
New South Wales	544,677	36.08	318,928	40.30
Victoria	392,961	26.03	206,354	26.08
Queensland	262,296	17.38	129,911	16.42
South Australia	157,925	10.46	80,048	10.11
Western Australia	126,844	8.40	32,237	4.07
Tasmania	24,837	1.65	23,931	3.02
Commonwealth	1,509,540	100.00	791,409	100.00

14. Exports of Wool from Commonwealth and Quantity sold Locally.—The number of bales of wool exported from the Commonwealth and the number sold at local sales prior to shipment, or taken for local use, during 1895, 1900, 1905, 1910, and the succeeding four seasons is shewn in the following table:—

EXPORTS OF WOOL FROM THE COMMONWEALTH, AND THE QUANTITY SOLD LOCALLY FROM 1895 TO 1914.

Year ended 30th June.	Overseas Exports.	Local Sales.(a)	Ratio of Wool sold locally to Exports.
			%
1895	1,595,652	817,333	51.22
1900	1,221,163	807,031	66.09
1905	1,218,969	926,940	76.04
1910	1,921,705	1,624,561	84.54
1911	1,975,378	1,642,555	83.15
1912	2,020,547	1,700,494	84.16
1913	1,718,486	1,518,650	88.37
1914	1,966,576	1,703,744	86.64

(a) Including wool absorbed by local woollen mills and wool-scouring establishments.

The steady development of the Australian wool market is clearly shewn in this table. In the nineteen years ended 1914, the quantity sold locally more than doubled, and the ratio of wool sold locally to that exported increased from 51 per cent. in 1895 to over 86½ per cent. in the season ended 30th June, 1914. The abnormal conditions obtaining since the outbreak of war have materially affected the ratios, which in consequence are no longer serviceable as a measure of growth of the local market.

15. Quantities of Various Descriptions of Wool Sold in Each State.—The quantities and ratios of the various descriptions of wool marketed in each State are shewn in the following table :—

PROPORTIONS OF THE VARIOUS DESCRIPTIONS OF WOOL SOLD LOCALLY IN THE SEVERAL STATES OF THE COMMONWEALTH DURING THE SEASON ENDED 30th JUNE, 1921.

Description of Wool.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Commonwealth.
	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.
Greasy ..	296,001	196,628	112,667	79,396	30,945	23,931	739,568
Scoured ..	22,927	9,726	17,244	652	1,292	..	51,841
Total ..	318,928	206,354	129,911	80,048	32,237	23,931	791,409
Fleece, etc. ..	315,260	200,946	126,188	77,696	31,042	23,312	774,444
Lambs' ..	3,668	5,408	3,723	2,352	1,195	619	16,965
Total ..	318,928	206,354	129,911	80,048	32,237	23,931	791,409
Merino ..	286,142	133,803	127,304	78,193	30,956	10,230	666,628
Crossbred and all strong breeds ..	32,786	72,551	2,607	1,855	1,281	13,701	124,781
Total ..	318,928	206,354	129,911	80,048	32,237	23,931	791,409
	%	%	%	%	%	%	%
Greasy ..	92.81	95.29	86.73	99.19	95.99	100.00	93.45
Scoured ..	7.19	4.71	13.27	0.81	4.01	..	6.55
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fleece, etc. ..	98.85	97.38	97.13	97.06	96.29	97.41	97.86
Lambs' ..	1.15	2.62	2.87	2.94	3.71	2.59	2.14
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Merino ..	89.72	64.84	97.99	97.68	96.03	42.75	84.23
Crossbred and all strong breeds ..	10.28	35.16	2.01	2.32	3.97	57.25	15.77
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Wool in the grease represented more than 93 per cent. of the total marketed during 1920-21. Of fleece and lambs' wool, the former represents 97.86, and the latter 2.14 per cent. The class of wool produced is largely merino, which is almost exclusively grown in the northern, western, and central parts of the continent, the bulk of the merino wool dealt with in Victoria coming from Riverina and other parts of New South Wales. The development of the frozen mutton and lamb export trade and the resultant raising of a type of sheep suitable for both mutton and wool have led to a

considerable increase in the production of crossbred wool throughout Australia during recent years. The proportion of such wool sold in Australia to the total sales amounted to 18.6 per cent. in 1912, whereas, eight years later, in 1919-20, the proportion had increased to 33.9 per cent. This expansion was arrested in 1920-21 by the decline in crossbred wool values mainly through the accumulation of large stocks of coarse wools in practically all the producing countries of the world. This is, however, only a passing phase, and when the keen demand and higher prices for the carcass manifest themselves, the suitability of the country for the rearing and fattening of crossbred sheep will assure a further increase of crossbred, once the trade returns to normal conditions. The whole of the crossbred and other strong-bred wools are grown in Victoria and Tasmania and in the southern parts of New South Wales, South Australia and Western Australia.

16. Percentages of Various Descriptions of Wool Sold in each State.—The following table gives the percentages of each description of wool sold in the several States during the season 1920-21 :—

PERCENTAGE OF BALES OF EACH DESCRIPTION OF WOOL SOLD IN THE SEVERAL STATES ON THE TOTAL SOLD OR APPRAISED IN THE COMMONWEALTH, 1920-21.

Description of Wool.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Commonwealth.
	%	%	%	%	%	%	%
Greasy ..	40.02	26.59	15.23	10.74	4.18	3.24	100.00
Scoured ..	44.23	18.76	33.26	1.26	2.49	..	100.00
Fleece, etc. ..	40.71	25.95	16.29	10.03	4.01	3.01	100.00
Lambs' ..	21.62	31.83	21.95	13.86	7.04	3.65	100.00
Merino ..	42.92	20.07	19.10	11.73	4.64	1.54	100.00
Crossbred and all strong breeds ..	26.27	58.14	2.09	1.49	1.03	10.98	100.00

§ 6. Hides and Sheepskins.

1. **Extent of Trade.**—In addition to the hides and sheepskins treated in the tanneries of the several States, a very considerable export trade is carried on, the total value of cattle hides and sheepskins exported from Australia during the five years 1916-17 to 1920-21 being no less than £10,917,466, or an average of £2,183,493 per annum.

2. **Sheepskins with Wool.**—By far the largest item included in the amount mentioned in the preceding paragraph arises from the value of sheepskins with wool exported, which are shipped principally to the United Kingdom and France. Details concerning the number so exported during the five years 1916-17 to 1920-21 are as follows :—

COMMONWEALTH EXPORTS OF SHEEPSKINS WITH WOOL, 1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 Years.
	No.	No.	No.	No.	No.	No.
United Kingdom	2,152,016	2,172,176	6,005,229	5,866,862	3,406,199	19,602,482
France ..	753,530	..	..	..	565,649	1,319,179
U.S. of America	..	..	..	179,260	140,426	319,686
Belgium ..	..	..	..	..	275,446	275,446
Canada ..	46,668	..	..	..	80,843	127,511
Other Countries	..	..	62	..	10,290	10,352
Total ..	2,952,214	2,172,176	6,005,291	6,046,122	4,478,853	21,654,656

The next table furnishes corresponding particulars as to value :—

**VALUE OF SHEEPSKINS WITH WOOL EXPORTED FROM THE COMMONWEALTH,
1916-17 TO 1920-21.**

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom	738,483	732,030	1,845,036	1,940,088	956,368	6,212,005
France ..	250,783	..	..	..	110,499	361,282
U.S. of America ..	..	..	..	27,266	36,641	63,907
Belgium ..	..	..	..	..	32,751	32,751
Canada ..	10,869	..	..	..	16,456	27,325
Other Countries ..	..	..	21	..	2,928	2,949
Total ..	1,000,135	732,030	1,845,057	1,967,354	1,155,643	6,700,219

3. Sheepskins without Wool.—In the case of sheepskins without wool the principal countries to which export takes place are the United States of America and the United Kingdom. Particulars concerning the quantities exported are as follows :—

**COMMONWEALTH EXPORTS OF SHEEPSKINS WITHOUT WOOL,
1916-17 TO 1920-21.**

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	No.	No.	No.	No.	No.	No.
U.S. of America	1,618,517	749,570	181,461	3,066,531	228,478	5,844,557
United Kingdom	155,189	66,996	444,943	729,903	419,855	1,816,886
Canada ..	184,460	74,710	162,477	306,592	16,350	744,589
New Zealand ..	24	..	4,968	3,024	16,242	24,258
Sweden ..	..	..	..	1,170	19,552	20,722
Japan ..	2,949	7,368	216	10,932	..	21,465
France ..	1,098	..	..	18,060	2,900	22,058
Other Countries ..	..	..	..	40,872	919	41,791
Total ..	1,962,237	898,644	794,065	4,177,084	704,296	8,536,326

Corresponding details concerning value are given hereunder :—

**VALUE OF SHEEPSKINS WITHOUT WOOL EXPORTED FROM THE
COMMONWEALTH, 1916-17 TO 1920-21.**

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	£	£	£	£	£	£
U.S. of America	126,612	74,693	21,802	473,257	29,351	725,715
United Kingdom	12,019	9,656	54,669	115,524	49,343	241,211
Canada ..	13,750	10,335	19,282	35,764	1,370	80,501
New Zealand ..	2	..	279	367	3,615	4,263
Sweden ..	..	..	..	205	2,614	2,819
Japan ..	337	685	24	1,486	..	2,532
France ..	89	..	..	787	259	1,135
Other Countries ..	..	..	..	4,055	111	4,166
Total ..	152,809	95,369	96,056	631,445	86,663	1,062,342

4. **Hides.**—The Commonwealth trade in cattle hides has assumed considerable proportions, and during 1914-15 the total value of such hides exported amounted to £1,303,201. The exports were principally to the United Kingdom and the United States of America. The disastrous drought of 1914-15, coupled with the increased local demand for leather, more especially for military purposes, resulted in a considerable falling-off in the quantity of hides available for export during the war period. Much of the former trade was regained in 1919-20, and the enhanced prices made the total value of the exportation equal to any pre-war shipment. The slump in prices of all pastoral products was responsible for a reduced export in 1920-21. Large quantities of hides are imported into the Commonwealth, mainly from New Zealand and the Pacific Islands.

Particulars concerning the export of cattle hides during the past five years are as follows :—

COMMONWEALTH EXPORTS OF CATTLE HIDES, 1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	No.	No.	No.	No.	No.	No.
United Kingdom ..	147,408	136,425	245,517	171,982	97,296	798,628
U.S. of America ..	2,783	4,943	2,734	336,092	63,986	410,538
Italy ..	2,334	..	..	21,185	49,355	72,874
Belgium ..	..	..	..	26,189	11,589	37,778
Japan ..	..	3,300	5,883	6,399	4,773	20,355
Canada ..	19,210	3,338	1,302	2,525	..	26,375
New Zealand ..	11,526	1,218	3,950	10	..	16,704
Denmark ..	..	..	..	2,370	7,394	9,764
Germany ..	..	..	..	..	18,855	18,855
France ..	3,733	..	..	1,500	20	5,253
Hong Kong ..	..	..	..	1,208	6,000	7,208
Other Countries ..	..	..	..	5	2,670	2,675
Total ..	186,994	149,224	259,386	569,465	261,938	1,427,007

In the next table are given particulars relative to the value of cattle hides exported :—

VALUE OF CATTLE HIDES EXPORTED FROM THE COMMONWEALTH, 1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
	£	£	£	£	£	£
United Kingdom ..	270,718	335,562	538,012	396,767	149,861	1,690,920
U.S. of America ..	5,217	10,638	2,078	931,660	86,472	1,036,065
Italy ..	3,772	..	..	56,072	61,204	121,048
Belgium ..	..	..	..	77,739	18,454	96,193
Japan ..	..	8,929	15,479	22,471	6,405	53,284
Canada ..	33,243	5,812	2,823	7,013	..	48,891
New Zealand ..	24,158	3,456	8,328	42	..	35,984
Denmark ..	..	..	..	5,841	18,207	24,048
Germany ..	..	..	..	..	21,312	21,312
France ..	7,152	..	..	4,040	21	11,213
Hong Kong ..	..	..	..	2,450	8,368	10,818
Other Countries ..	..	..	..	21	5,108	5,129
Total ..	344,260	364,397	566,720	1,504,116	375,412	3,154,905

The number and value of cattle hides, including calfskins, imported into the Commonwealth during the five years 1916-17 to 1920-21 are as follows :—

CATTLE HIDES IMPORTED INTO THE COMMONWEALTH, 1916-17 TO 1920-21.

Particulars.			1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for 5 years.
No.	..	..	94,065	132,218	260,237	205,662	313,442	1,005,624
Value	..	£	161,380	151,531	424,339	579,915	500,460	1,817,625

During the past five years the exports of calfskins amounted to 258,268, valued at £197,379, and of horse hides, 5,683, valued at £8,395; the imports of horse hides during the same period amounting to 12,420, valued at £14,730.

§ 7. Graphical Representation of Pastoral Production.

1. **General.**—As comparatively complete statistics relative to the number of horses, cattle, sheep and pigs are available from 1860, the graphical representation of the fluctuations in numbers for the Commonwealth as a whole, shewn on page 209, covers the period from 1860 to 1920.

2. **Horses.**—With relatively unimportant fluctuations the number of horses in the Commonwealth increased at a fairly consistent rate until 1895, when a decline set in, culminating in the losses of the drought of 1902. At this latter point the number was practically identical with that for 1890. From 1902 onwards a rapid improvement was experienced, the total for 1913 being the highest then recorded. The disastrous drought of 1914-15 was responsible for heavy losses, but subsequent annual increases made the total number of horses in 1918 the greatest ever recorded. As the result of the prolonged drought recently experienced throughout Australia the number of horses declined by 111,639 during the past two years.

3. **Cattle.**—The graph for cattle furnishes evidence of rapid increase in number, interrupted by four marked periods of decline, of which the first extended from 1862 to 1866, the second from 1881 to 1885, the third from 1894 to 1902. So extensive was this last-mentioned decline that the number receded to that of 1879. From 1902 a rapid recovery took place, and the total for 1911 exceeded that existing at the end of the year 1895, though still short of the 12,311,617 cattle recorded in 1894. The fourth period of decline set in in 1912 and terminated with the heavy losses of the 1914-15 drought. In 1916 the number of cattle commenced to ascend, and, assisted by considerable increases during three of the next four seasons reached its highest point in 1920.

4. **Sheep.**—In the case of sheep the graph shews that the upward movement in number is subject to periodic reversals.

The greatest of these occurred between 1891 and 1902, when the number of sheep declined by one-half, or nearly 53,000,000.

So great are the recuperative powers of Australia that at the end of 1911, nine years later, the number had increased by 40,000,000.

The second great period of decline set in in 1912, and at the end of the severe drought of 1914-15 the number of sheep had decreased by 24,000,000 as compared with 1911.

During the recent drought of 1918-20 the number fell by 11,532,154 in 1919, the greatest decline in any one year save the disastrous drought year of 1902, when the decrease amounted to 18,371,864.

A satisfactory increase of more than 2½ millions was recorded in 1920, mainly as a result of the ideal pastoral conditions existing in New South Wales, where the flocks increased by more than 4½ millions during the year.

5. Pigs.—The graph for pigs exhibits more numerous fluctuations than that for any of the other classes of live stock represented, and from 1904 to 1908 furnished evidence of a persistent decline. In 1909, however, an upward movement took place; and this was well maintained during the two succeeding years, the 1911 returns exceeding all previous records. The position fluctuated considerably during subsequent years, first descending then ascending, until in 1917 the number of pigs attained its maximum. During the next two years considerable decreases occurred, but the decline was arrested by a small increase of 68,438 in 1920, the increase being noticeable in all the States save Victoria.

SECTION VIII.

AGRICULTURAL PRODUCTION.

NOTE.—Except where otherwise stated, the “agricultural” years hereinafter mentioned are taken as ending on the 30th June.

§ 1. Introductory.

1. **Early Attempts at Agriculture.**—The instructions issued to Captain Phillip on the 25th April, 1787, directed him, amongst other things, to proceed as soon as possible to the cultivation of the soil “under such regulations as may appear to be necessary and best calculated for securing supplies of grain and provisions.” When the settlers landed at Botany Bay, however, it was found that the glowing accounts published in England by members of Captain Cook’s expedition of the fertility of the soil in that locality were considerably overdrawn. Even when Phillip and his company moved round to Port Jackson on the 26th January, 1788, matters were for a time in no better case. The ground in the immediate neighbourhood of the settlement was not suitable for the cultivation of cereal crops, and when the time came to cultivate the soil it was found that there were very few who possessed the slightest acquaintance with the art of husbandry.

2. **The First Sowing.**—In his despatch of the 15th May, 1788, Captain Phillip states that it was proposed to sow eight acres with wheat and barley, although, owing to the depredations of field mice and ants, he was doubtful of the success of the crops.

3. **Discovery of Suitable Agricultural Land.**—A branch settlement was formed at Rosehill, on the Parramatta River, towards the close of 1788, and here grain crops were successfully raised. In his despatch of 12th February, 1790, Phillip refers to the harvest at Rosehill at the end of December, 1789, as consisting of 200 bushels of wheat and 60 of barley, in addition to small quantities of oats, Indian corn, and flax. By the year 1791 there were 213 acres under crop in this locality. In 1792 a new settlement was formed at Toongabbie, about three miles westward of Parramatta, where Phillip states “there are several thousand acres of exceeding good ground.” The Hawkesbury Valley, which probably contains some of the richest land in the world, was first settled in 1794. For a long time agricultural operations in Australia were restricted to the narrow belt of country between the tableland and the east coast of New South Wales, as it was not until the year 1813 that a passage was discovered across the Blue Mountains to the fertile plains of the west.

§ 2. Progress of Agriculture.

1. **Early Records.**—In an “Account of Live Stock and Ground under Crop in New South Wales, 19th August, 1797,” Governor Hunter gives the acreage under crop as follows :—Wheat, 3,361 acres ; maize, 1,527 acres ; barley, 26 acres ; potatoes, 11 acres ; and vines, 8 acres.

At a muster taken in 1808 the following was the return of crops :—Wheat, 6,877 acres ; maize, 3,389 acres ; barley, 544 acres ; oats, 92 acres ; peas and beans, 100 acres ; potatoes, 301 acres ; turnips, 13 acres ; orchards, 546 acres ; and flax and hemp, 34 acres.

By the year 1850 the area under crop had increased to 491,000 acres, of which 198,000 acres were cultivated in what is now the State of New South Wales, and 169,000 acres in Tasmania. At the end of 1850 the area under cultivation in Victoria, which was then the Port Phillip District of New South Wales, was 52,190 acres.

The gold discoveries of 1851 and subsequent years had at first a very disturbing effect on agricultural progress, the area under crop declining from 491,000 acres in 1850 to 458,000 acres in 1854; the area under cultivation in New South Wales decreased by nearly 66,000 acres, while in Tasmania a falling-off of over 41,000 acres was experienced. The demand for agricultural products occasioned by the large influx of population was, however, soon reflected in the increased area cultivated, for at the end of 1858 the land under crop in Australia totalled over a million acres. The largest increase took place in Victoria, which returned an area of 299,000 acres. For the same year South Australia had 264,000 acres in cultivation, Tasmania 229,000 acres, and New South Wales 223,000 acres.

2. **Progress of Cultivation since 1860.**—The following table shews the area under crop in each of the Commonwealth States and Territories at decennial intervals since 1860 and during each of the last five seasons. The area under permanent artificially-sown grasses is excluded in all the States, except for the years 1860-79 in the case of New South Wales, where the acreage cannot be separated. During those years, however, the area laid down under permanent grasses could not have been very large.

AREA UNDER CROP IN AUSTRALIA, 1860 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	Fed. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	260,798	387,282	3,353	359,284	24,705	152,860	..	..	1,188,282
1870-1	426,976	692,840	52,210	801,571	54,527	157,410	..	..	2,185,534
1880-1	629,180	1,548,809	113,978	2,087,237	57,707	140,788	..	..	4,577,699
1890-1	852,704	2,031,955	224,993	2,093,515	69,678	157,376	..	..	5,430,221
1900-1	2,445,564	3,114,132	457,397	2,369,680	201,338	224,352	..	..	8,812,463
1910-11	3,386,017	3,952,070	667,113	2,746,334	855,024	286,920	360	..	11,893,838
1916-17	5,164,434	4,851,335	885,259	3,627,477	2,004,944	270,526	274	2,131	16,806,380
1917-18	4,461,172	4,110,225	727,958	3,079,778	1,679,772	238,199	134	1,744	14,298,982
1918-19	3,891,823	3,942,899	525,517	3,111,079	1,605,088	254,109	89	1,779	13,332,393
1919-20	3,771,468	4,000,815	563,762	3,058,770	1,628,163	270,955	365	2,109	13,296,407
1920-21	4,465,143	4,489,503	779,497	3,231,083	1,804,987	297,383	296	1,966	15,069,858

The increase in the area under crop during the past nine years has been most marked in the case of Victoria, New South Wales, and Western Australia, the respective increases being 849,262, 836,630, and 732,334 acres. During the same period an increase of 265,745 acres was experienced in South Australia, while the increases in Queensland and Tasmania amounted to 253,109 and 27,383 acres respectively. The total area under crop in the Commonwealth increased during the period by 2,962,841 acres. The percentage of increase was particularly high in Western Australia, viz., 68 per cent. Queensland comes next with 48 per cent., and the percentage position of the remaining States was as follows:—Victoria 23, New South Wales 23, Tasmania 10, and South Australia 9.

3. **Relation to Population.**—From the following table it will be seen that the persistent decline of the acreage under crop per 1,000 of the population, which had been in evidence since 1915-16, has been arrested in 1920-21, the improvement in the latter

year on the 1919 figures amounting to 277 acres per 1,000 of the population. Details for the past five seasons are as follows:—

TOTAL AREA UNDER CROP PER 1,000 OF POPULATION, 1916-17 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1916-17 ..	2,740	3,453	1,306	8,208	6,539	1,383	59	959	3,417
1917-18 ..	2,324	2,900	1,059	6,893	5,481	1,203	28	829	2,870
1918-19 ..	1,984	2,743	745	6,797	5,181	1,252	21	797	2,624
1919-20 ..	1,850	2,661	764	6,351	4,973	1,291	80	1,099	2,507
1920-21 ..	2,135	2,938	1,036	6,578	5,456	1,397	74	997	2,784

4. **Relation to Total Area.**—The next table furnishes a comparison of the area under crop in the several States and Territories and the Commonwealth with the respective total areas. For the Commonwealth as a whole, the area under crop in 1920-21 represented only about one acre in every 126. In Victoria the proportion was about one acre in every 13, in New South Wales one in 44, in Tasmania one in 56, in South Australia one in 75, in Western Australia one in 346, in Queensland one in 551, in the Federal Territory one in 306, and in the Northern Territory about one in 1,132,151.

PERCENTAGE OF AREA UNDER CROP ON TOTAL AREA, 1916-17 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	%	%	%	%	%	%	%	%	%
1916-17 ..	2.608	8.625	0.206	1.491	0.321	1.612	0.0001	0.354	0.883
1917-18 ..	2.253	7.308	0.170	1.266	0.269	1.420	..	0.290	0.751
1918-19 ..	1.965	7.010	0.122	1.279	0.257	1.515	..	0.296	0.700
1919-20 ..	1.904	7.113	0.131	1.257	0.261	1.615	..	0.351	0.698
1920-21 ..	2.255	7.982	0.182	1.328	0.289	1.772	..	0.327	0.792

5. **Artificially-sown Grasses.**—In all the States considerable areas are devoted to artificially-sown grasses, mainly sown on uncultivated land after burning off the existing vegetation and consequently not included with "area under crops." Statistics regarding the area under such grasses are as shewn hereunder:—

AREA UNDER SOWN GRASSES, 1916-17 TO 1920-21.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Nor. Ter.	Fed. Ter.	Commonwealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1916-17	1,357,087	1,292,817	363,876	29,644	8,527	654,072	200	70	3,706,093
1917-18	1,389,557	1,268,310	406,094	20,155	11,769	679,512	460	83	3,775,940
1918-19	1,438,382	1,269,493	418,467	21,987	14,158	666,954	600	83	3,830,124
1919-20	1,542,446	1,062,244	449,019	18,107	16,672	667,390	500	871	3,757,249
1920-21	1,816,104	1,051,290	450,780	14,305	17,265	660,000	500	71	4,010,815

The considerable increase in the area of the grass lands of the Commonwealth is due in large measure to the great development of the dairying industry which has taken place during recent years, and which is referred to in the succeeding section.

§ 3. Relative Importance of Crops.

1. **Distribution of Crops.**—In the following table are furnished details concerning the areas in the several States under each of the principal crops for the season 1920-21 :—

DISTRIBUTION OF CROPS IN AUSTRALIA, 1920-21.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	Total for C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat ..	3,126,775	2,295,865	177,320	2,167,646	1,275,675	28,284	..	602	9,072,167
Oats ..	77,537	443,636	4,690	167,001	193,486	50,474	..	172	936,996
Maize ..	144,105	24,149	115,805	199	19	..	6	..	284,283
Barley—									
Malting ..	4,193	50,297	12,012	173,555	4,497	5,354	..	..	249,908
Other ..	1,776	43,657	3,896	28,524	6,189	797	..	..	84,839
Beans and Peas..	295	7,655	89	6,057	329	15,934	..	..	30,359
Rye ..	1,733	1,717	72	379	584	1,061	..	..	5,546
Other Cereals ..	..	..	1	..	117	..	40	..	158
Hay ..	853,109	1,333,397	94,212	570,865	266,824	113,618	10	1,154	3,233,189
Green Forage ..	112,003	79,524	142,554	40,678	26,620	5,575	..	..	406,954
Grass Seed ..	..	2,042	14,748	11	..	1,179	..	..	17,980
Orchards and other									
Fruit Gardens	75,904	87,768	26,927	31,364	19,570	37,013	..	5	278,551
Vines—									
Productive ..	7,375	22,871	1,110	29,449	2,613	..	..	..	63,418
Unproductive..	3,408	6,384	146	7,212	597	..	..	..	17,747
Market Gardens	9,888	12,201	2,018	1,471	2,269	386	..	27	28,260
Sugar-cane—									
Productive ..	5,519	..	89,142	..	..	..	..	..	94,661
Unproductive..	5,863	..	73,477	..	..	..	..	..	79,340
Potatoes ..	27,667	62,687	8,770	4,811	4,254	32,000	..	6	140,195
Onions ..	206	8,000	290	432	89	44	..	..	9,061
Other root crops	953	2,114	2,345	360	135	3,531	50	..	9,488
Tobacco ..	1,021	95	228	1	..	..	..	..	1,345
Broom Millet ..	1,453	1,429	372	..	..	..	..	..	3,254
Pumpkins and									
Melons ..	2,815	1,061	4,938	340	449	..	100	..	9,703
Hops ..	..	93	..	3	..	1,401	..	..	1,497
All other crops ..	1,545	2,861	4,335	725	671	732	90	..	10,959
Total area ..	4,465,143	4,489,503	779,497	3,231,083	1,804,987	297,383	296	1,966	15,069,858

2. **Relative Areas of Crops in States and Territories.**—Taking the principal crops, i.e., those in the case of which the cultivation amounts to more than 50,000 acres in the Commonwealth, the proportion of each in the various States and Territories to the total area under crop for the season 1920-21 is shewn in the next table. In five of the States, viz., New South Wales, Victoria, South Australia, Western Australia, and Queensland, wheat-growing for grain is by far the most extensive form of cultivation, while in the same States, with the exception of Queensland, the hay crop is second in importance. In Victoria, South Australia, and Western Australia the oat crop occupies third position, while maize ranks third in New South Wales followed by green forage. In Queensland, the three principal crops in the order of importance after wheat are sugar-cane, green forage, and maize, while in Tasmania hay, oats, and orchards and fruit gardens, occupy the leading positions. For the Commonwealth as a whole, the wheat, hay, and oat crops represent nearly 88 per cent of the total area under crop.

PROPORTION OF AREA UNDER CHIEF CROPS, 1920-21.

Crop.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	%	%	%	%	%	%	%	%	%
Wheat ..	70.03	51.14	22.75	67.09	70.68	9.51	..	30.62	60.20
Hay ..	19.11	29.70	12.09	17.67	14.78	38.21	3.38	58.70	21.45
Oats ..	1.74	9.88	0.60	5.17	10.72	16.97	..	8.75	6.22
Green Forage..	2.51	1.77	18.29	1.26	1.47	1.87	..	..	2.70
Barley ..	0.13	2.09	2.04	6.25	0.59	2.07	..	..	2.22
Maize ..	3.23	0.54	14.86	0.01	0.00	..	2.03	..	1.89
Orchards and Fruit Gardens	1.70	1.96	3.45	0.97	1.08	12.45	..	0.25	1.85
Sugar-cane	0.25	..	20.86	..	..	..	..	..	1.15
Potatoes ..	0.62	1.40	1.12	0.15	0.24	10.76	..	0.31	0.93
Vineyards	0.24	0.65	0.16	1.13	0.18	..	..	..	0.54
All other..	0.44	0.87	3.78	0.30	0.26	8.16	94.59	1.37	0.85
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

3. Relative Positions of States and Territories in regard to Principal Crops.—The relative proportion of acreage of the several crops for 1920-21 and the position regarding them in each State and Territory is shewn in the following table. New South Wales exhibited the largest area under wheat and maize, and was second in hay, orchards, green forage, and sugar-cane; Victoria was in the leading position in regard to hay, oats, orchards and fruit gardens, and potatoes; and Queensland was first in sugar-cane and green forage and second in maize. South Australia had the largest area under vineyards and barley, and occupied third position in regard to oats, wheat, and hay; Western Australia held second position in oats, and fourth in wheat, hay, barley, and vineyards; while Tasmania was second in regard to potatoes, and third in orchards and fruit gardens.

RELATIVE POSITIONS OF STATES AND TERRITORIES IN REGARD TO AREA UNDER EACH OF THE PRINCIPAL CROPS DURING THE SEASON 1920-21.

Crop.	N.S.W.	Victoria	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wlth.
Wheat.. .. %	34.47	25.31	1.95	23.89	14.06	0.31	..	0.01	100.00
position ..	1	2	5	3	4	6	..	7	..
Hay %	26.39	41.24	2.91	17.66	8.25	3.51	..	0.04	100.00
position ..	2	1	6	3	4	5	..	7	..
Oats %	8.28	47.35	0.50	17.83	20.65	5.39	..	0.00	100.00
position ..	4	1	6	3	2	5	..	7	..
Green Forage .. %	27.52	19.54	35.03	10.00	6.54	1.37	..	..	100.00
position ..	2	3	1	4	5	6	..	..	..
Maize %	50.69	8.49	40.74	0.07	0.01	..	0.00	..	100.00
position ..	1	3	2	4	5	..	6	..	..
Orchards and Fruit Gardens .. %	27.25	31.51	9.67	11.26	7.02	13.29	..	0.00	100.00
position ..	2	1	5	4	6	3	..	7	..
Barley %	1.78	28.07	4.75	60.37	3.19	1.84	..	..	100.00
position ..	6	2	3	1	4	5	..	..	..
Sugar-cane .. %	6.54	..	93.46	..	..	..	..	..	100.00
position ..	2	..	1	..	..	..	..	..	..
Potatoes %	19.73	44.72	6.26	3.43	3.03	22.83	..	0.00	100.00
position ..	3	1	4	5	6	2	..	7	..
Vineyards %	13.29	36.04	1.55	45.17	3.95	..	..	..	100.00
position ..	3	2	5	1	4	..	..	..	..
All other crops .. %	15.60	30.77	23.07	7.66	3.64	19.02	0.22	0.02	100.00
position ..	4	1	2	5	6	3	7	8	..
Total area under crop %	29.63	29.79	5.17	21.44	11.98	1.98	0.00	0.01	100.00
position ..	2	1	5	3	4	6	8	7	..

4. *Acreage of Principal Crops, Commonwealth.*—The acreage devoted to each of the principal crops in the whole Commonwealth during the last five seasons is shewn below :—

ACREAGE OF CHIEF COMMONWEALTH CROPS, 1916-17 TO 1920-21.

Crop.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat	11,532,828	9,774,658	7,990,165	6,419,160	9,072,167
Hay	2,671,862	2,212,914	2,692,904	3,125,653	3,233,189
Oats	844,130	615,800	768,152	1,068,296	936,996
Green Forage ..	390,151	373,976	586,440	1,401,209	406,954
Maize	360,072	332,057	286,812	265,469	284,283
Orchards and Fruit Gardens	257,692	262,134	264,751	271,894	278,551
Barley	230,253	204,870	254,869	267,309	334,747
Sugar-cane	178,190	186,358	171,024	159,037	174,001
Potatoes	149,895	136,241	111,169	113,900	140,195
Vineyards	65,394	67,862	70,058	73,326	81,165
All other Crops ..	125,913	132,112	136,049	131,154	127,610
Total	16,806,380	14,298,982	13,332,393	13,296,407	15,069,858

During the period under review the area devoted to the several crops has varied considerably, that under wheat attaining a maximum in the season 1916-17, and a minimum in 1919-20, while hay reached its maximum area in 1920-21, and its minimum in 1917-18. Of the other crops, maize and potatoes attained their maximum in 1916-17, sugar-cane in 1917-18, oats and green forage in 1919-20, and barley, vineyards, and orchards in 1920-21.

§ 4. Wheat.

1. *Progress of Wheat-Growing.*—(i) *Acreage.* The area under wheat for grain is given below for each State at various periods since 1860, and is shewn diagrammatically in the graph hereinafter :—

AREA UNDER WHEAT, 1860-61 TO 1921-22.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	128,829	161,252	196	273,672	13,584	66,450	..	..	643,983
1870-1	147,997	284,167	2,892	604,761	26,640	57,382	..	..	1,123,839
1880-1	253,138	977,285	12,632	1,733,542	27,636	50,022	..	..	3,054,305
1890-1	333,233	1,145,163	10,390	1,873,573	33,820	32,452	..	..	3,228,631
1900-1	1,530,609	2,017,321	79,304	1,913,247	74,308	51,825	..	..	5,666,614
1910-11	2,128,826	2,398,089	106,718	2,104,717	581,862	52,242	2	..	7,372,456
1916-17	3,805,699	3,125,692	227,778	2,778,357	1,566,608	27,789	..	905	11,532,328
1917-18	3,328,856	2,690,216	127,815	2,355,682	1,249,762	21,812	..	515	9,774,658
1918-19	2,409,633	2,214,490	21,637	2,186,349	1,146,103	11,917	..	36	7,990,165
1919-20	1,474,035	1,918,269	46,478	1,926,915	1,041,827	11,497	..	139	6,419,160
1920-21	3,126,775	2,295,865	177,320	2,167,646	1,275,675	28,284	..	602	9,072,167
1921-22a	3,202,610	2,611,198	139,198	2,384,012	1,336,228	25,000	..	..	9,698,246

(a) Preliminary figures except Victorian which are final.

The area devoted in the Commonwealth to the production of wheat for grain reached its maximum in 1915-16, when, in response to the appeal of the Government for an increased supply of wheat for Imperial purposes, the farmers of Australia sowed 12,484,512 acres. After that year, however, a serious depression set in in the growing of wheat, brought about largely by war conditions and unfavourable seasons, and in the short space of four years heavy annual decreases had reduced the area in 1919-20 to 6,419,160 acres, or only half that of 1915-16. In order to arrest this decline an earnest endeavour was made throughout the wheat-growing States to increase the acreage during 1920-21, and it is highly satisfactory to be able to record that the promise of remunerative Government guarantees and the prospects of high prices ruling in England when the crop would be garnered proved sufficient inducement for growers to sow 9,072,167 acres, an increase of 2,653,007 acres on the 1919-20 area.

Although final figures for 1921-22 for all the States are not yet available, the data to hand indicate the total area under wheat for grain in the Commonwealth at about 9,698,246 acres, representing a further expansion of over 600,000 acres on the 1920-21 figures. This increase was in evidence in all the wheat producing States, being most marked in Victoria, where the area under wheat for grain increased by 315,333 acres. The total for the Commonwealth during 1921-22 exceeded the ten-yearly average by 600,301 acres.

(ii) *Yield.* The production during the same period for each State and for the Commonwealth as a whole is given below:—

PRODUCTION OF WHEAT, 1860-61 TO 1921-22.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	Fed. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bush.	Bush.	Bushels.
1860-1	1,581,598	3,459,914	3,136	3,576,593	208,332	1,415,896	..	..	10,245,469
1870-1	999,595	2,870,409	39,787	6,961,164	316,769	896,881	..	..	12,084,605
1880-1	3,717,355	9,727,369	223,243	8,606,510	332,232	750,040	..	..	23,356,749
1890-1	3,649,216	12,751,295	207,990	9,399,369	467,389	642,980	..	..	27,118,259
1900-1	16,173,771	17,347,321	1,194,088	11,253,148	774,653	1,110,421	..	..	48,353,402
1910-11	27,913,547	34,813,019	1,022,373	24,344,740	5,897,540	1,120,744	20	..	95,111,983
1916-17	36,585,380	51,162,438	2,463,141	45,745,064	16,103,216	348,330	..	12,620	152,420,189
1917-18	37,704,626	37,737,552	1,035,268	28,692,594	9,303,787	252,383	..	7,374	114,733,584
1918-19	18,324,640	25,239,871	104,509	22,936,925	8,845,387	186,570	..	360	75,638,262
1919-20	4,387,209	14,858,380	311,638	14,980,413	11,222,950	213,589	..	813	45,974,992
1920-21	55,610,993	39,468,625	3,707,357	34,258,914	12,248,080	565,874	..	14,007	145,873,850
1921-22a	42,650,000	43,867,596	3,000,000	24,946,525	13,904,721	500,000	..	..	128,868,842

(a) Final figures Victoria, those for remaining States approximate.

The 1915-16 harvest of 179,065,703 bushels was the largest ever reaped in the Commonwealth. The 1916-17 yield of 152,420,189 bushels comes next in order, followed by the yields obtained during 1920-21, 1921-22, 1917-18, and 1913-14, *i.e.*, 145,873,850, 128,868,842, 114,733,584, and 103,344,132 bushels respectively. These six seasons represent the only occasions on which a harvest exceeding 100,000,000 bushels was garnered. During the four seasons ended 1919-20 the production of wheat in the Commonwealth declined from 179,065,703 to 45,975,805 bushels, a decrease of 133,089,898 bushels, or 33,272,475 bushels per annum. The increased sowings of wheat in 1920-21 were favoured by a magnificent season, the yield per acre averaging over 16 bushels, with the result that an excellent harvest of 145,873,850 bushels was reaped, a figure which has only been exceeded on two previous occasions, *viz.*, in 1915-16 and 1916-17.

(iii) *Average Yields.* In the next table will be found the average yield of wheat per acre in each of the last five seasons, and for the decennium 1911-21 :—

YIELD OF WHEAT PER ACRE, 1916-17 TO 1920-21.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1916-17..	9.61	16.37	10.81	16.46	10.28	12.53	..	14.06	13.22
1917-18..	11.33	14.03	8.10	12.18	7.44	11.57	..	14.32	11.74
1918-19..	7.60	11.40	4.83	10.49	7.72	15.66	..	10.00	9.47
1919-20..	2.98	7.75	6.71	7.77	10.77	18.58	..	5.85	7.16
1920-21..	17.79	17.19	20.91	15.80	9.60	20.01	..	23.27	16.08
Average 10 seasons 1911-21	11.34	12.15	12.16	10.48	8.87	18.00	1.43	14.70	11.05

As the above figures shew, there were considerable variations in the average yields, chiefly due to the vagaries of the seasons. Since 1915-16, the record wheat producing year, the average yield per acre, like the area and total yield, continuously declined, until in 1919-20 it receded to 7.16 bushels. The magnificence of the season is clearly reflected in the exceptional average of 16.08 bushels obtained in 1920-21, and to find a parallel for this high yield it will be necessary to go to the 16.35 bushels recorded as far back as 1866, when less than 1,000,000 acres were sown in relatively fertile areas.

(iv) *Relation to Population.* During the seasons embraced in the following table, the Commonwealth production of wheat per head of population has varied between 8½ bushels in 1919-20 and 31 bushels in 1916-17. The State in which wheat-growing generally occupies the most important position relatively to population is South Australia, which in 1920-21 had a yield averaging nearly 70 bushels per head. Queensland and Tasmania are the States in which the average production of wheat per head is least, the quantity raised being generally below that required for local consumption. Particulars for the past five seasons are as follows :—

AUSTRALIAN WHEAT PRODUCTION PER 1,000 OF POPULATION. 1916-17 TO 1920-21.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1916-17..	19,412	36,419	3,633	103,508	52,523	1,780	..	5,677	30,988
1917-18..	19,642	26,628	1,506	64,214	30,356	1,274	..	3,505	23,026
1918-19..	9,342	17,559	148	50,115	28,554	919	..	161	14,885
1919-20..	2,153	9,884	423	31,105	34,278	1,017	..	424	8,667
1920-21..	26,594	25,828	4,928	69,749	37,024	2,659	..	7,103	26,952

The normal annual consumption of wheat in Australia, exclusive of the requirements for seed, poultry and other live stock, is 320 lbs. (5.345 bushels) per head of population.

2. *Australian and Foreign Wheat Yields.*—In the next table will be found a statement of the average return per acre in the principal wheat-growing countries of the world, ranging from Denmark with a maximum of 41 bushels per acre to Algeria with a minimum of 2.2 bushels per acre. Australia with approximately 16.1 occupies a relatively subordinate position.

AVERAGE YIELD OF WHEAT PER ACRE IN VARIOUS COUNTRIES, 1920.

Country.	Average Yield in bushels per acre.	Country.	Average Yield in bushels per acre.
Denmark	41.0	Canada	14.4
Netherlands	38.0	Rumania.. ..	13.9
Belgium	33.6	United States	13.6
New Zealand	31.2	Spain	13.5
Switzerland	30.2	India	12.6
Sweden	29.2	Italy	12.5
United Kingdom	28.8	Argentine Republic	11.5
Egypt	26.6	Uruguay	11.1
Germany	24.3	French Morocco	11.0
Chile	21.9	Russia in Europe (1916)	10.4
Japan	21.8	Poland	10.2
France	18.9	Union of South Africa	9.9
Bulgaria	18.6	Portugal	9.5
Czecho-Slovakia	16.8	Greece	8.7
Jugo-Slavia	16.4	Russia in Asia (1915)	7.0
Australia (a)	16.1	Tunis	4.0
Austria	14.6	Algeria	2.2
Hungary	14.4		

(a) Average yield per acre for 10 years, 11.05.

3. Wheat Crops of the World.—The latest available official statistics of the production of wheat in various countries are given in the following table:—

WHEAT YIELD IN VARIOUS COUNTRIES, 1920.

Country.	Yield in bushels	Country.	Yield in bushels.
United States	833,027,000	Czecho-Slovakia	26,362,500
India	377,883,000	Chile	25,179,667
Russia in Europe (1917)	337,900,000	French Morocco	21,998,667
Canada	263,189,333	Poland	18,257,667
France	242,839,000	Persia (1915)	15,510,400
Russia in Asia (1917)	230,406,000	Mexico	14,493,499
Argentine Republic	169,756,500	Greece	12,194,167
Australia (a)	145,873,850	Sweden	10,528,333
Italy	141,338,833	Portugal	10,376,000
Spain	138,606,500	Belgium	10,274,667
Germany	82,583,500	Union of South Africa	8,113,333
Rumania	70,349,667	Uruguay	7,768,333
Jugo-Slavia	64,709,500	Denmark	7,390,167
United Kingdom	56,838,500	New Zealand	6,872,333
Bulgaria	39,705,000	Algeria	6,797,667
Hungary	38,294,833	Netherlands	5,765,500
Turkey in Asia (1915)	33,929,000	Austria	5,424,167
Egypt	31,710,833	Tunis	5,228,667
Japan	28,288,000	Switzerland	3,586,167

(a) Average yield for 10 years, 100,556,134.

Various estimates of the total quantity of wheat produced in the world have been made. That furnished by the International Institute of Agriculture, Rome, gives the following figures for the ten years 1909 to 1918:—

WORLD'S PRODUCTION OF WHEAT, 1909 TO 1918.

Year.	1,000,000 bushels.	Year.	1,000,000 bushels.	Year.	1,000,000 bushels.
1909	3,575	1913.. ..	4,035	1917.. ..	3,243
1910	3,532	1914.. ..	3,579	1918.. ..	3,675
1911	3,525	1915.. ..	4,270	Average for 10 years	3,655
1912	3,810	1916.. ..	3,301		

In this estimate the figures given for Australia and New Zealand relate to the agricultural year ending on 30th June in the year specified.

For the ten years referred to, the Australian production of wheat aggregated 999,237,270 bushels, thus representing 2.7 per cent. of the world's production. The total quantity of wheat produced in the British Empire during the same period of ten years was approximately 7,608 million bushels, so that the Australian production of wheat represented 13.1 per cent. of that of the British Empire, while the British Empire production represented 20.82 per cent. of the world's total.

4. **Prices of Wheat.**—(i) *British Wheat.* Since the United Kingdom is the largest importer of Australian wheat, the price of wheat in the British markets is a matter of prime importance to the local producer. The table below gives the average prices per Imperial quarter realised for British-grown wheat :

PRICES OF BRITISH WHEAT PER QUARTER, 1861 TO 1920.

Year.	Average for Year.	Highest Weekly Average.	Lowest Weekly Average.	Year.	Average for Year.	Highest Weekly Average.	Lowest Weekly Average.
	s. d.	s. d.	s. d.		s. d.	s. d.	s. d.
1861 ..	55 4	61 6	50 0	1914 ..	34 11	43 3	30 11
1871 ..	56 8	60 0	52 6	1915 ..	52 10	62 0	42 9
1881 ..	45 4	55 2	40 9	1916 ..	58 5	75 10	46 3
1891 ..	37 0	41 8	32 3	1917 ..	75 9	83 10	70 3
1901 ..	26 9	27 8	25 8	1918 ..	72 10	74 5	71 2
1911 ..	31 8	33 4	30 0	1919 ..	72 11	73 4	72 5
1913 ..	31 8	34 3	30 0	1920 ..	80 10	90 11	72 6

(ii) *Australian Export Values.* In the next table will be found a statement of the export values of Australian wheat during each of the last five years :—

EXPORT VALUES OF AUSTRALIAN WHEAT, 1916-17 TO 1920-21.

Year	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	s. d.	s. d.	s. d.	s. d.	s. d.
Price per bushel	4 10	5 3	5 1	5 6	9 0

The export values here shewn are the average declared values for the successive years at the several ports of shipment in the Commonwealth.

5. **Imports and Exports of Wheat and Flour.**—(i) *Quantities.* The table hereunder shews the imports, exports, and net exports of wheat and flour from 1916-17 to 1920-21. For the sake of convenience, flour has been expressed at its equivalent in wheat, one ton of flour being taken as equal to 50 bushels of grain. In ordinary seasons the Commonwealth imports of wheat and flour are negligible. During the past five years the export ranged between 41,684,852 bushels in 1917-18 and 108,355,773 bushels in 1919-20, the net exports for the period averaging 75,370,343 bushels.

IMPORTS AND EXPORTS OF WHEAT AND FLOUR, COMMONWEALTH, 1916-17 TO 1920-21.

Year.	Imports.			Exports.			Net Exports.
	Wheat.	Flour.	Total.	Wheat.	Flour.	Total.	
	Bushels.	Eq. Bushels. ^a	Bushels.	Bushels.	Eq. Bushels. ^a	Bushels.	
1916-17	40	3,050	3,090	55,278,872	14,531,650	69,810,522	69,807,432
1917-18	20	1,050	1,070	22,981,772	18,704,150	41,685,922	41,684,852
1918-19	50	2,750	2,800	44,563,597	24,169,750	68,733,347	68,730,547
1919-20	285	4,300	4,585	82,470,658	25,889,700	108,360,358	108,355,773
1920-21	1,170	3,850	5,020	76,791,883	11,486,250	88,278,133	88,273,113

(a) Equivalent in bushels of wheat.

(ii) *Destination of Exported Breadstuffs.* In the next two tables will be found a list of the principal countries to which the Commonwealth exported wheat and flour during each year of the period 1916-17 to 1920-21. The countries are as shewn in the Australian Customs returns, but owing to the fact that in normal times wheat ships are frequently instructed to call for orders at various ports, the countries to which these ports belong cannot always be considered as the ultimate destination of the whole of the wheat said to be exported to them.

EXPORTS OF WHEAT FROM THE COMMONWEALTH, 1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for Five Years.
	Bushels.	Bushels.	Bushe's.	Bushels.	Bushels.	Bushels.
United Kingdom	22,715,735	5,309,162	9,104,560	50,074,725	38,709,680	125,913,862
France ..	8,562,240	5,074,098	674,363	13,010,455	8,921,645	36,242,801
Egypt ..	4,842,000	..	11,741,477	2,265,283	10,477,463	29,326,223
Italy ..	8,154,602	517,962	2,950,015	1,397,738	2,219,143	15,239,460
Union of South Africa ..	6,549,395	1,216,172	541,778	1,220,147	1,157,778	10,685,270
United States ..	357,643	6,593,878	3,510,762	73,293	112	10,535,688
Japan ..	..	702,958	1,407,775	6,381,738	7,332	8,499,803
India ..	..	225,820	4,306,312	1,522,593	25,623	6,080,348
New Zealand ..	225,852	1,295,448	1,452,625	2,393,667	602,843	5,970,435
Belgium ..	..	..	..	..	5,754,723	5,754,723
Canary Islands (a)	884,615	..	..	624,425	3,532,793	5,041,833
Norway ..	540,482	..	1,369,105	1,645,125	342,510	3,897,222
Sweden ..	..	..	2,134,500	523,065	..	2,657,565
Germany ..	..	..	..	..	2,504,690	2,504,690
Peru ..	1,154,355	340,965	660,318	131,023	..	2,286,661
Netherlands ..	..	..	..	..	2,202,653	2,202,653
Ceylon ..	1,247	392	2,142,212	52,645	303	2,196,799
Other Countries	1,290,706	1,704,917	2,567,795	1,154,736	332,592	7,050,746
Total ..	55,278,872	22,981,772	44,563,597	82,470,658	76,791,883	282,086,782

(a) For orders.

The exports of flour during the same period and the principal countries of destination were as follows:—

EXPORTS OF FLOUR FROM THE COMMONWEALTH, 1916-17 TO 1920-21.

Country to which Exported.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	Total for Five Years.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
United Kingdom ..	127,502	145,914	136,254	72,828	81,952	564,450
Egypt ..	9,772	13,994	129,992	92,537	61,502	307,797
Netherlands East Indies ..	20,093	20,017	34,929	42,070	15,388	132,497
Straits Settlements ..	9,755	23,609	24,386	63,508	8,264	129,522
Union of South Africa ..	25,106	7,330	12,892	39,513	41,458	126,299
Philippine Islands ..	..	35,158	27,180	39,942	3,040	105,320
France ..	33,320	32,597	..	33,407	..	99,324
Italy ..	25,679	6,099	35,804	..	..	67,582
United States ..	8,131	54,889	3,865	..	..	66,885
Hong Kong ..	648	3,604	17,898	36,506	368	59,024
Japan ..	300	3,702	1,258	24,876	480	30,616
India ..	83	..	23,629	486	4	24,202
New Caledonia ..	3,533	3,314	3,804	3,999	3,202	17,852
New Zealand ..	9,006	5,736	511	256	137	15,646
Fiji ..	2,199	2,280	2,212	2,257	1,362	10,310
Mauritius ..	112	..	1,968	4,532	3,320	9,932
Ceylon ..	20	..	47	8,191	755	9,013
Portuguese East Africa ..	409	..	..	632	2,477	3,518
China ..	335	923	880	1,199	77	3,414
Papua ..	232	350	429	879	636	2,526
Other Countries ..	14,398	14,567	25,457	50,176	5,303	109,901
Total ..	290,633	374,083	483,395	517,794	229,725	1,895,630

For the five years under review the export of wheat to the United Kingdom amounted to 125,913,862 bushels, or $44\frac{1}{2}$ per cent. of the total export for the period, while the export of flour to the United Kingdom aggregated 564,450 tons, or $29\frac{1}{2}$ per cent. of the total export. During the quinquennium the heaviest exports of flour have been to the United Kingdom, Egypt, Netherlands East Indies, Straits Settlements, South Africa, the Philippine Islands, and France.

(iii) *Exports of Wheat and Flour.* From the foregoing returns it will be seen that the quantity of Australian wheat exported in the form of flour during the past five years represents, on the average, about 25 per cent. of the total equivalent in wheat exported as wheat or flour from the Commonwealth.

A point of some interest in connexion with the export of wheat, and one which bears also on the proportions of wheat and flour exports just referred to, is that concerning the quantity of phosphoric acid which this export has the effect of removing from the Commonwealth, and the necessity which exists for the return to the soil of this substance in some form.

According to an estimate furnished by the chemist to the New South Wales Department of Agriculture (F. B. Guthrie, Esq., F.C.S., etc.), the proportions of milled product from a bushel (60 lbs.) of wheat are, approximately, 42 lbs. of flour, 9 lbs. of bran, and 9 lbs. of pollard, while the percentage of phosphoric acid contained in these products is as follows:—

Flour	..	..	0.32 per cent., or 0.13 lb. per bushel.
Bran	..	..	3.00 „ 0.27 „
Pollard	..	..	0.90 „ 0.08 „

The total amount of phosphoric acid contained in a bushel of wheat is, therefore, 0.48 lb., of which 0.13 lb. is in the flour and 0.35 lb. in the offal.

During the last ten years the net exports from the Commonwealth of wheat and its milled products have amounted to 438,333,976 bushels of wheat, 2,660,561 tons of flour, and 3,567,830 bushels of bran, pollard, and sharps. On the basis of the figures quoted above this export would contain no less than 228,257,934 lbs. of phosphoric acid, the value of which as a fertilizer would amount to about two million pounds sterling.

(iv) *Local Consumption of Wheat.* The estimated consumption of wheat for food and for seed purposes in the Commonwealth during the past ten years is given in the following tables:—

WHEAT USED FOR HUMAN CONSUMPTION IN THE COMMONWEALTH, 1912 TO 1920-21.

Year.	Flour Milled.	Net Exports of Flour.		Net Quantity Available for Home Consumption.		Net Quantity Available per Head of Population.	
		Flour.	Flour in Biscuits Exported.	Flour.	Equivalent in Terms of Wheat.	Flour.	Equivalent in Terms of Wheat.
	Tons.	Tons.	Tons.	Tons.	Bushels.	Tons.	Bushels.
1912 ..	677,053	167,948	2,820	536,285	25,314,250	.1067	5.335
1913 ..	760,613	221,605	2,600	536,408	26,820,400	.1096	5.480
1914 ..	713,845	174,180	2,400	537,265	26,863,250	.1081	5.405
1915 ..	541,810	7,633	2,160	532,017	26,600,850	.1070	5.350
1915-16 ..	577,038	146,618	2,650	427,770	21,388,500	.0861	4.305
1916-17 ..	869,975	290,572	2,885	576,518	28,825,900	.1172	5.860
1917-18 ..	985,761	374,062	9,810	601,889	30,094,450	.1208	6.040
1918-19 ..	1,046,268	483,340	6,437	556,491	27,824,550	.1095	5.475
1919-20 ..	1,050,228	517,708	4,590	527,930	26,396,500	.0995	4.975
1920-21 ..	801,511	229,648	3,375	568,488	28,424,400	.1050	5.250
Aggregate 10 years	8,024,102	2,613,314	39,727	5,371,061	268,553,050	.1069	5.345

ESTIMATED QUANTITY OF WHEAT USED FOR SEED PURPOSES IN THE COMMONWEALTH, 1911 TO 1920.

Year.	Area for Grain and Hay.	Wheat for Seed Purposes.		
		Quantity.	Per Acre.	Per Head of Population.
	Acres.	Bushels.	Bushels.	Bushels.
1911	8,859,949	8,282,000	.935	1.811
1912	9,112,676	8,484,000	.931	1.787
1913	10,661,430	9,747,000	.914	1.992
1914	11,012,679	10,059,000	.913	2.023
1915	14,414,024	13,041,000	.905	2.624
1916	12,894,917	11,523,000	.894	2.343
1917	10,910,669	9,713,000	.890	1.949
1918	9,428,398	9,054,000	.960	1.782
1919	8,250,572	7,774,000	.942	1.466
1920	10,271,055	9,471,000	.922	1.750
Aggregate for 10 years ..	105,816,369	97,148,000	.918	1.949

In addition to the above, there is to be taken into consideration grain fed to poultry and other live stock. This, doubtless, varies in quantity from year to year according to the prices current for wheat, and other causes. No data are available on which to base an estimate of actual quantity so consumed. The flour available for human consumption necessarily fluctuates from year to year coincident with stocks being heavy or light. In some years the flour available per head of population, after deducting net exports from quantity milled, shews a substantial increase over the average for the previous year, this, however, being counterbalanced by a decline in the following year. The average quantity of flour consumed per annum for the ten years under consideration was 0.1069 tons per head of population, which, when expressed in equivalent terms in wheat, represents 5.345 bushels. The estimates of quantity of grain used for seed purposes have been based on data supplied by the Agricultural and Statistical Departments of the several States giving average quantities of seed used per acre for wheat sown either for grain or hay. The average annual quantity thus used during the ten years was 1.949 bushels per head of population, and 0.918 bushels or 55 lbs. per acre sown.

6. **Value of the Wheat Crop.**—The estimated value of the wheat crop in each State and in the Commonwealth during the season 1920–21 is shewn below :—

VALUE OF THE WHEAT CROP, (a) 1920–21.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
Aggregate value..	23,173,100	17,760,881	1,745,547	13,703,566	5,511,636	268,790	5,840	62,169,360
Value per acre ..	£7/8/3	£7/14/9	£9/16/11	£6/6/5	£4/6/5	£9/10/1	£9/14/0	£6/17/1

(a) Exclusive of the value of straw.

7. **The Australian Wheat Marketing Scheme.**—(i) *General Principles.* Owing to the abnormal conditions prevailing, a Wheat Marketing Scheme was entered into by the Governments of the Commonwealth and of the States of New South Wales, Victoria, South Australia, and Western Australia, for the purpose of realizing to the best advantage the 1915–16 wheat harvest of the States named, and of making advances to farmers pending realization. It was subsequently decided that the 1916–17 harvest, and later, the 1917–18, 1918–19, 1919–20 and 1920–21 harvests, should be dealt with on similar lines to those of the 1915–16 harvest.

The general principles of the scheme may be shortly stated thus :—

1. That all growers should participate equitably in the realization of the harvest and the proceeds thereof.
2. That the limited freights available should be allotted between the States in accordance with the exportable surplus of each.

The securing and general allotment of freights with the exception of the 1920–21 crop was under the control of the Chartering Agents, who were responsible to the Commonwealth Government. The Australian Wheat Board made its own chartering arrangements for 1920–21.

The distribution of freights among the States was in charge of the Australian Wheat Board, which also had the duty of realizing the crop. This Board consisted of Ministerial representatives of the Governments of the Commonwealth and of the States and representatives of the growers, one from each State. It had the assistance of an Advisory Board consisting of well-known wheat shippers. A London Wheat Committee, consisting of the High Commissioner and the Agents-General of the States concerned, acting with the advice of the London representatives of the wheat shippers arranged overseas sales. Adjustments were to be made between the States so that, having regard to the quantity shipped, each would ultimately receive the average net result of the whole of the overseas realizations.

In certain States the crop was bought by the State Government, and in others the wheat was received from the growers for sale on their behalf.

The Australian Wheat Board fixed all prices at which wheat was sold, except in the case of poultry feed, which was left to the States to regulate.

Each State had a local Board or Commission to control the operations of the scheme within the State concerned. This Board or Commission effected all local sales, including sales to millers.

(ii) *Advances and Finance.* Under arrangements with the Australian banks made by the Commonwealth and State Governments, advances were made to farmers upon delivery of their wheat at railway stations to representatives of agents appointed by the different State Governments. The following advances per bushel have been made in respect of the six pools for each of the States up to the 29th May, 1922 :—

POOLED WHEAT ADVANCES PER BUSHEL, 1915-16 TO 1920-21.

State.	1915-16. (b)	1916-17.	1917-18. (a)	1918-19. (a)	1919-20. (a)	1920-21.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales	4 10	3 3	4 3	4 11	7 10	7 10
Victoria ..	4 10.6	(a) 4 2½	5 1	5 5	8 0	7 3
South Australia	4 7½	3 3	4 9	5 4	8 9	7 3
Western Australia	4 7.8	(a) 4 1½	4 9	5 5	9 4	7 3

(a) Less rail freight.

(b) Less rail freight and handling charges.

Proceeds of wheat as realized were applied in reduction of the bank overdrafts caused by payment of advances and expenses. The rate of interest payable to the banks was six per cent. for 1920-21, five per cent. being the rate for previous pools. The Government of each State has undertaken to repay all advances made on account of such State, and the Commonwealth Government has guaranteed repayment by the States. Advances to growers were made by means of certificates issued by the agents appointed by the various States. The certificates were payable at banks named by the growers.

(iii) *Results of the Scheme.* In all the States, certain wheat, particularly seed wheat, was not brought under the scheme. The quantity of wheat pooled therefore differed from that harvested in each State. In addition, wheat grown in one State was pooled in another. A considerable quantity of New South Wales wheat was included in Victorian returns, and the Victorian total also included a small quantity of South Australian wheat.

Deliveries made on account of each harvest to 29th May, 1922, are as follows :—

WHEAT POOLED IN EACH STATE, 1915-16 TO 1920-21.

State in which Pooled.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21 (to 29/5/1922).
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
New South Wales ..	58,186,000	32,042,000	33,714,000	13,892,000	461,000	51,417,000
Victoria ..	59,177,000	50,407,000	36,233,000	23,029,000	12,349,000	38,953,000
South Australia ..	29,890,000	42,006,000	25,876,000	20,475,000	12,694,000	32,256,000
Western Australia ..	14,929,000	13,822,000	7,529,000	7,624,000	9,707,000	10,740,000
Total ..	162,182,000	138,277,000	103,352,000	65,020,000	35,211,000	133,366,000

The quantities of wheat disposed of by the Australian Wheat Board were as follows :—

POOLED WHEAT DISPOSED OF BY THE AUSTRALIAN WHEAT BOARD IN EACH STATE, 29th MAY, 1922.

Particulars.	N.S.W.	Vic.	S. Aust.	W. Aust.	Total.
1915-16. (In thousands of bushels.)					
Shipments	29,147	37,772	21,311	10,169	98,399
Local sales	29,257	22,154	8,513	4,835	64,759
Adjustment of stocks .. ..	..	..	134	..	134
Total	58,404	59,926	29,958	15,004	163,292

1916-17. (In thousands of bushels.)					
Shipments	7,995	25,462	23,106	2,466	59,029
Local sales	21,551	23,699	14,096	11,116	70,462
Adjustment of stocks	2,496	1,246	4,804	241	8,787
Total	32,042	50,407	42,006	13,823	138,278

1917-18. (In thousands of bushels.)					
Shipments	10,775	20,221	19,616	2,562	53,174
Local sales	22,772	16,148	6,136	4,892	49,948
Stocks on hand .. ..	..	..	12	..	12
Adjustment of stocks	167	..	112	75	354
Total	33,714	36,369	25,876	7,529	103,488

1918-19. (In thousands of bushels.)					
Shipments	547	9,785	16,173	5,353	31,858
Local sales	13,371	13,552	4,427	2,374	33,724
Total	13,918	23,337	20,600	7,727	65,582

1919-20. (In thousands of bushels.)					
Shipments .. ..	..	1,556	9,671	4,758	15,985
Local sales	457	10,812	3,123	4,985	19,377
Adjustment of stocks	4	..	..	..	4
Total	461	12,368	12,794	9,743	35,366

1920-21. (In thousands of bushels.)					
Shipments	37,464	26,842	28,614	7,111	100,031
Local sales	14,225	12,238	3,935	3,704	34,102
Stocks on hand .. ..	..	..	7	..	7
Total	51,689	39,080	32,556	10,815	134,140

The value realized to 29th May, 1922 (all pools) is as follows :—

TOTAL VALUE OF POOLED WHEAT SOLD IN EACH STATE TO 29th MAY, 1922.

Particulars.	N.S.W.	Victoria.	S. Aust.	W. Aust.	Total.
	£	£	£	£	£
Oversea shipments and Australian Wheat Board flour contracts	30,773,000	44,029,000	38,788,000	14,171,000	127,761,000
Local sales	23,982,000	21,270,000	8,351,000	6,589,000	60,192,000
Total shipments and local deliveries	54,755,000	65,299,000	47,139,000	20,760,000	187,953,000

During the operations of the "Pool," several sales of magnitude were made, notably one of 3,000,000 tons to the British Wheat Commission, at a rate of 4s. 9d. per bushel f.o.b., equalling £26,600,000, which is the largest wheat transaction ever recorded, and another of 1,500,000 tons to the same purchaser for £15,400,000, at the rate of 5s. 6d. per bushel.

The operations of the Voluntary Wheat Pools in the various States during 1921-22 will be found in the Appendix at end of this book.

§ 5. Oats.

1. **Progress of Cultivation.**—Oats came next in importance to wheat amongst the grain crops cultivated last season, but while wheat grown for grain accounted for 60 per cent., oats represented only 6 per cent. of the area under crop in the Commonwealth. The progress of cultivation of oats since 1860 is shown in the table hereunder, and more fully in the graphs hereinafter :—

CULTIVATION OF OATS, 1860-61 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	6,535	86,337	7	2,273	507	30,303	..	125,962
1870-1	10,683	149,309	122	6,188	2,095	30,946	..	199,343
1880-1	17,923	134,089	116	4,355	1,319	19,853	..	177,655
1890-1	14,102	221,048	411	12,475	1,934	20,740	..	270,710
1900-1	29,383	362,689	385	27,988	4,790	45,073	..	470,308
1910-11	77,991	392,681	2,537	77,674	61,918	63,897	..	676,688
1916-17	67,003	441,598	6,564	151,609	122,220	55,028	108	844,130
1917-18	82,512	293,214	3,002	106,556	95,666	34,771	79	615,800
1918-19	86,421	342,867	298	160,823	141,459	36,231	53	768,152
1919-20	75,893	559,547	363	192,153	191,931	48,185	224	1,068,296
1920-21	77,637	443,636	4,690	167,001	193,486	50,474	172	936,996

2. **Total Yield.**—The total oat crop of the several States for the same period is furnished in the following table :—

COMMONWEALTH OAT CROP, 1860-61 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1860-1	93,814	2,633,693	91	52,989	11,925	926,418	..	3,723,930
1870-1	119,365	2,237,010	1,586	88,383	39,974	691,250	..	3,177,568
1880-1	356,121	2,362,425	2,081	50,070	21,104	439,446	..	3,231,247
1890-1	256,659	4,919,325	8,967	116,229	38,791	519,395	..	5,859,366
1900-1	593,548	9,582,332	7,855	366,229	86,433	1,406,913	..	12,043,310
1910-11	1,702,706	9,699,127	50,469	1,136,618	776,233	2,063,303	..	15,428,456
1916-17	1,083,030	8,289,289	108,664	1,839,541	1,689,352	1,006,183	1,950	14,018,009
1917-18	1,452,144	6,141,287	44,688	1,248,529	908,592	589,224	2,967	10,387,431
1918-19	1,272,411	5,274,984	3,632	1,540,603	1,499,689	848,420	1,341	10,441,080
1919-20	583,503	6,603,067	2,871	1,634,239	2,486,918	1,242,258	3,255	12,556,111
1920-21	1,640,552	10,907,191	103,933	2,331,067	2,022,031	1,514,155	2,148	18,521,077

The principal oat-growing State of the Commonwealth is Victoria. During the past five seasons it has produced 56 per cent. of the total quantity of oats grown in the Commonwealth; Western Australia, South Australia, New South Wales and Tasmania come next in order of importance. In New South Wales and Tasmania, the highest production of oats for any season was that of 1909-10, while Victoria experienced its maximum yield in 1903-4, South Australia in 1920-21, Queensland in 1916-17, and Western Australia in 1919-20. For the Commonwealth as a whole, the record yield was that of 18,521,077 bushels in the season 1920-21, while the yields of 17,541,210 and 16,538,979 for 1903-4 and 1915-16 respectively rank second and third.

3. **Average Yield.**—The average yield per acre of the oat crop of the Commonwealth varies considerably in the different States, being highest in Tasmania and lowest in South Australia. Particulars as to average yield in each of the last five seasons, and for the decennium 1911-21, are given in the succeeding table :—

AVERAGE YIELD OF OATS PER ACRE, 1916-17 TO 1920-21.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1916-17	16.16	18.77	16.55	12.13	13.82	18.28	18.06	16.61
1917-18	17.60	20.94	14.89	11.72	9.50	16.95	37.56	16.87
1918-19	14.72	15.38	12.19	9.58	10.60	23.42	25.30	13.59
1919-20	7.71	11.80	7.91	8.50	12.96	25.78	14.53	11.75
1920-21	21.16	24.59	22.16	13.96	10.45	30.00	12.49	19.77
Average for 10 seasons 1911-21	16.72	17.26	16.91	10.75	11.94	26.14	17.57	15.81

The smallest average yield per acre ever recorded for the Commonwealth was that experienced in the abnormally dry season 1914-15, viz., 5.60 bushels, while the largest in the past ten years was that of the season 1915-16, amounting to 22.92 bushels per acre.

4. **Relation to Population.**—The State in which oat production occupies the most important position in relation to population is Tasmania, the yield for that State representing about 5.07 bushels per head during the last five years under review, as compared with 2.56 bushels per head for the Commonwealth as a whole. Particulars for the seasons 1916-17 to 1920-21 are furnished in the succeeding table :—

OAT PRODUCTION PER 1,000 OF POPULATION, 1916-17 TO 1920-21.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1916-17	575	5,901	160	4,162	5,510	5,142	877	2,850
1917-18	756	4,333	64	2,794	2,964	2,975	1,410	2,085
1918-19	649	3,670	5	3,366	4,841	4,181	601	2,055
1919-20	286	4,393	4	3,393	7,595	5,917	1,696	2,367
1920-21	785	7,138	138	4,746	6,112	7,114	1,089	3,422

5. **Value of Oat Crop.**—The estimated value of the oat crop of the several States of the Commonwealth for the season 1920-21 is as follows :—

VALUE OF OAT CROP, (a) 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
Aggregate value..	£287,100	£1,408,846	£28,149	£271,966	£339,111	£220,814	£380	£2,556,366
Value per acre ..	£3/14/1	£3/3/6	£6/0/0	£1/12/7	£1/15/1	£4/7/6	£2/4/2	£2/14/7

(a) Exclusive of the value of straw.

6. **Imports and Exports.**—The production of oats in the Commonwealth has not yet reached such a stage as to admit of a regular export trade in this cereal; in fact in certain years the imports have exceeded the exports, notably in 1903, 1906, 1908, 1910, and in each of the four years prior to 1916-17. The quantities and values of oats imported into and exported from the Commonwealth during the years 1916-17 to 1920-21 are given hereunder:—

COMMONWEALTH IMPORT AND EXPORT OF OATS, 1916-17 TO 1920-21.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1916-17 ..	3,700	635	670,985	97,879	667,285	97,244
1917-18 ..	838	219	368,113	53,809	367,275	53,590
1918-19 ..	41,728	9,713	149,413	35,326	107,685	25,613
1919-20 ..	146,700	41,759	290,323	83,175	143,623	41,416
1920-21 ..	139,728	30,057	865,588	143,874	725,860	113,817

The principal countries from which the Commonwealth imports of oats have been obtained are the Dominion of New Zealand, Chile, Japan, the Argentine Republic, and the United States of America, while the principal countries to which oats were exported during the period under review were New Zealand, Java and the United Kingdom.

7. **Oatmeal, etc.**—Importations of oatmeal, etc., into the Commonwealth take place principally from the United Kingdom, the United States, and New Zealand. The total importations of oatmeal, wheatmeal, and rolled oats during 1920-21 amounted to 197,214 lbs., and represented a value of £5,319, while the exports amounted to 2,827,758 lbs., valued at £44,652, and were shipped mainly to Netherlands East Indies, New Zealand, and Papua.

8. **Comparison with Other Countries.**—A comparison of the Australian production of oats with that of the leading oat-producing countries of the world is furnished in the following table:—

PRODUCTION OF OATS IN VARIOUS COUNTRIES, 1920.

Country.	Quantity of Oats Produced.	Country.	Quantity of Oats Produced.	Country.	Quantity of Oats Produced.
	Bushels.		Bushels.		Bushels.
United States..	1,197,024,750	Czecho-Slovakia ..	47,723,500	Hungary ..	17,846,000
Russia in Europe (1916) ..	674,593,000	Rumania ..	43,473,750	Netherlands ..	17,748,500
Canada ..	451,103,250	Denmark ..	40,635,500	Austria ..	12,779,750
Germany ..	265,995,500	Argentine Rep.	38,085,000	Norway ..	12,062,500
France ..	240,099,000	Spain ..	30,218,000	Japan ..	8,929,750
United Kingdom	180,872,000	Belgium ..	27,092,250	Bulgaria ..	8,099,750
Poland ..	89,184,000	Jugo-Slavia	22,878,500	Union of South Africa ..	6,231,000
Russia in Asia (1915) ..	82,243,000	Finland ..	19,648,750	Algeria ..	5,484,000
Sweden ..	56,480,250	Italy ..	19,378,750	New Zealand	5,093,250
		Australia ..	18,521,077		

9. **Comparison of Yields.**—The average yield per acre of oats in Australia is a very low one compared with the results obtained in other countries, where the cultivation of this cereal is more extensively carried on. Arranging the countries contained in the foregoing table according to the magnitude of the average yield of oats for the years specified, the results are as follows :—

YIELD OF OATS PER ACRE, VARIOUS COUNTRIES, 1920.

Country.	Average per Acre.	Country.	Average per Acre.	Country.	Average per Acre.
	Bushels.		Bushels.		Bushels.
Belgium ..	46.2	France ..	28.1	Russia in Europe	
Netherlands ..	44.9	Bulgaria ..	24.4	(1916) ..	19.4
United Kingdom	39.1	Czecho-Slovakia	24.2	Spain ..	19.0
Denmark ..	37.3	Hungary ..	22.2	Argentine Rep.	18.5
Norway ..	35.3	Jugo-Slavia ..	22.1	Italy ..	16.7
New Zealand ..	34.5	Poland ..	21.7	Russia in Asia	
Germany ..	33.5	Austria ..	20.4	(1915) ..	13.4
Sweden ..	32.1	Rumania ..	20.1	Union of South	
Japan ..	31.7	Australia ..	19.8	Africa ..	11.0
Canada ..	28.5	Finland ..	19.4	Algeria ..	9.5
United States ..	28.2				

10. **Price of Oats.**—The average wholesale prices of oats in the markets of the several capitals for the year 1920 are given in the following table :—

AVERAGE WHOLESALE PRICE OF OATS PER BUSHEL, 1920.

Particulars.	Sydney.(a)	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Average price per bushel ..	4 1	4 11	5 7	3 11	4 4	5 3

(a) Year ended 30th June, 1921.

§ 6. Maize.

1. **States Growing Maize.**—The only States in which maize is at all extensively grown for grain are those of New South Wales and Queensland, the area so cropped in these two States during the season 1920-21 being 259,910 acres, or 91 per cent. of the total for the Commonwealth. Of the balance, Victoria contributed 24,149 acres, South Australia 199 acres, Western Australia 19 acres, and the Northern Territory 6 acres. The climate of Tasmania prevents the growing of maize for grain in that State. In South Australia, prior to 1908, particulars concerning maize had not been specially asked for on the form used in the collection of agricultural statistics. In all the States, maize is grown to a greater or less extent as green forage, particularly in connexion with the dairying industry.

2. **Area under Maize.**—The area devoted to the growing of maize for grain in each State, from 1880 onwards, is given in the following table, and the actual fluctuations from year to year are shewn more fully on the graph hereinafter.

The total area under maize in the Commonwealth has exceeded 400,000 acres on only one occasion, and that as far back as the 1910-11 season. From that year onwards to 1917-18 the acreage remained practically constant at about 335,000 acres, but during the next three seasons the planting of maize diminished by 50,000 acres.

AREA UNDER MAIZE, 1880-1 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1880-1 ..	127,196	1,769	44,109	..	32	..	..	173,106
1890-1 ..	191,152	10,357	99,400	..	81	..	..	300,990
1900-1 ..	206,051	9,389	127,974	..	91	..	..	343,505
1910-11 ..	213,217	20,151	180,362	(a)619	46	19	..	414,914
1916-17 ..	155,373	23,076	181,405	117	51	45	5	360,072
1917-18 ..	145,733	20,987	165,124	70	97	25	21	332,057
1918-19 ..	114,582	22,559	149,505	112	39	15	..	286,812
1919-20 ..	136,509	23,474	105,260	165	11	50	..	265,469
1920-21 ..	144,105	24,149	115,805	199	19	6	..	284,283

(a) Particulars for years prior to 1907-8 not available.

3. **Total Yield.**—The maximum production of maize in the Commonwealth was recorded in 1910-11, when the harvest exceeded 13,000,000 bushels. During the past decade the annual yield averaged 8,000,000 bushels. Particulars concerning the yield from 1880 onwards are given hereunder:—

MAIZE CROP, 1880-1 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1880-1	4,518,897	49,299	1,409,607	..	896	..	..	5,978,699
1890-1	5,713,205	574,083	2,373,803	..	1,526	..	..	8,662,617
1900-1	6,292,745	604,180	2,456,647	..	1,399	..	..	9,354,971
1910-11	7,594,130	982,103	4,460,306	(a)6,375	718	449	..	13,044,081
1916-17	4,333,430	1,172,330	3,018,934	993	949	450	50	8,527,136
1917-18	3,499,531	1,152,787	4,188,586	796	701	432	429	8,843,262
1918-19	2,091,921	711,679	4,105,974	1,756	623	200	..	6,912,153
1919-20	4,052,025	878,922	1,830,664	1,810	84	500	..	6,764,005
1920-21	4,176,000	1,065,880	2,012,864	3,738	240	60	..	7,258,782

(a) Particulars for years prior to 1907-8 not available.

4. **Average Yield.**—In the following table particulars are given of the average yield per acre of the maize crops of the several States for the seasons 1916-17 to 1920-21, and also for the decennium 1911-21:—

AVERAGE YIELD OF MAIZE PER ACRE, 1916-17 TO 1920-21.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1916-17 ..	27.89	50.80	16.64	8.49	18.61	10.00	10.00	23.68
1917-18 ..	24.01	54.93	25.37	11.37	7.23	17.28	20.43	26.63
1918-19 ..	18.26	31.55	27.46	15.68	15.97	13.33	..	24.10
1919-20 ..	29.63	37.44	17.39	10.97	7.64	10.00	..	25.48
1920-21 ..	28.98	44.14	17.38	18.78	12.63	10.00	..	25.53
Average for 10 seasons 1911-21	26.20	43.89	21.45	15.27	12.59	17.01	14.41	25.17

The extraordinary high average yield obtained in Victoria is due, in large measure, to the fact that the area under maize in that State is comparatively small and is situated in districts that are peculiarly suited to the production of this grain. The average yield in New South Wales is appreciably higher than that obtained in Queensland.

5. **Value of Maize Crop.**—The value of the Commonwealth maize crop for the season 1920-21 has been estimated at £2,271,185, made up as follows :—

VALUE OF MAIZE CROP, 1920-21.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N. Ter.	C'wealth.
	£	£	£	£	£	£	£
Aggregate value ..	1,148,400	257,588	863,854	1,215	108	20	2,271,185
Value per acre ..	£7/19/5	£10/13/4	£7/9/2	£6/2/1	£5/13/8	£3/6/8	£7/19/9

6. **Relation to Population.**—During the past five seasons the Commonwealth production of maize has averaged $1\frac{1}{2}$ bushels per head of population, while the average for Queensland, the State in which the production per head is highest, amounted to $4\frac{1}{4}$ bushels. Details for the several States during the past five seasons are as follows :—

MAIZE PRODUCTION PER 1,000 OF POPULATION, 1916-17 TO 1920-21.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	N. Ter.	F. Ter.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1916-17..	2,299	834	4,453	2	3	96	22	1,734
1917-18..	1,823	813	6,091	2	2	90	204	1,775
1918-19..	1,067	495	5,820	4	2	43	..	1,360
1919-20..	1,988	585	2,482	4	..	110	..	1,275
1920-21..	1,997	697	2,676	8	1	15	..	1,341

7. **Australian and Foreign Maize Production.**—The following table gives the production of maize in Australia and in the leading maize-producing countries of the world. The figures show that the United States of America was responsible for over 73 per cent. of the total production.

PRODUCTION OF MAIZE IN VARIOUS COUNTRIES, 1920.

Country.	Production of Maize.	Country.	Production of Maize.
	Bushels.		Bushels.
United States ..	3,230,531,964	Philippine Islands ..	16,978,393
Argentine Republic ..	230,423,214	France ..	15,445,000
Rumania ..	186,465,893	Canada ..	14,334,821
India (British) (1918) ..	89,844,000	Portugal ..	11,720,714
Italy ..	89,299,288	Russia in Asia (1913) ..	10,765,860
Jugo-Slavia ..	86,556,250	Czecho-Slovakia ..	9,647,679
Mexico (1918) ..	73,660,000	Greece ..	9,133,393
Egypt ..	70,568,929	Australia ..	7,258,782
Russia in Europe (1917) ..	67,137,000	Guatemala ..	4,062,321
Hungary ..	50,156,429	Japan (1918) ..	3,756,000
Union of South Africa ..	43,320,000	French Morocco ..	3,436,429
Bulgaria ..	34,427,857	Uruguay ..	2,698,810
Spain ..	27,692,500	Austria ..	2,121,964

8. **Comparison of Yields.**—The average yield per acre of maize in the Commonwealth during 1920 was 25.5 bushels, and may be regarded as highly satisfactory when compared with that of other maize-producing countries, the yields per acre of which are shown in the following table :—

AVERAGE YIELD OF MAIZE PER ACRE IN VARIOUS COUNTRIES, 1920.

Country.	Average Yield per Acre.	Country.	Average Yield per Acre.
	Bushels.		Bushels.
Canada	49.2	Spain	23.7
Egypt	36.4	Austria	20.8
United States of America ..	31.8	Mexico (1918)	19.1
Jugo-Slavia	28.7	Russia in Europe (1916) ..	19.0
Argentine Republic	28.5	France	18.4
Japan (1918)	26.3	Greece	17.6
Czecho-Slovakia	26.2	Portugal	16.0
Rumania	25.9	India (1918)	14.3
Australia (a)	25.5	Philippine Islands	12.8
Hungary	24.9	Union of South Africa	12.4
Bulgaria	24.6	French Morocco	11.1
Italy	24.1	Russia in Asia (1913)	10.1

(a) Average yield for 10 years, 25.2 bushels.

9. **Oversea Imports and Exports.**—The Commonwealth oversea trade in maize is practically insignificant, any importation or exportation depending solely on the success or failure of the Australian crop. During the past five years owing to droughty conditions the total net import amounted to 500,000 bushels. Details of imports and exports for the years 1916-17 to 1920-21 are as follows :—

COMMONWEALTH IMPORTS AND EXPORTS OF MAIZE, 1916-17 TO 1920-21.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1916-17	41,952	8,162	50,296	11,894	— 8,344	— 3,732
1917-18	3,227	770	128,988	29,069	— 125,761	— 28,299
1918-19	255,605	73,774	84,119	20,804	171,486	52,970
1919-20	494,278	158,361	6,632	3,001	487,646	155,360
1920-21	96,536	40,097	77,489	27,162	19,047	12,935

NOTE.—The minus sign (—) signifies net exports.

The principal countries to which maize has been exported from the Commonwealth are New Zealand and the Pacific Islands, while the principal countries from which importations have taken place are South Africa, Java, and the Pacific Islands.

10. **Prepared Maize.**—A moderate quantity of corn-flour is imported annually into the Commonwealth, the principal countries of supply being the United Kingdom and the United States. During the year 1920-21 these importations amounted to 130,734 lbs., and represented a value of £2,726. The exports of this commodity have been steadily increasing in dimensions during recent years, the amount exported during 1920-21 amounting to 84,779 lbs., valued at £2,418.

11. **Price of Maize.**—The average wholesale price of maize in the Sydney market is given in the following table for each of the last five years :—

AVERAGE SYDNEY PRICE OF MAIZE PER BUSHEL, 1916-17 TO 1920-21.

Particulars.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	s. d.	s. d.	s. d.	s. d.	s. d.
Average price per bushel ..	3 8	4 8½	6 11½	8 11	6 6

§ 7. Barley.

1. **Area under Barley.**—The area devoted to barley in the Commonwealth has fluctuated very considerably, though with a tendency to increase during the past few years. Originally the principal barley-growing State was Victoria, but in 1913-14 South Australia attained the lead in regard to acreage, and for 1920-21 accounted for more than 60 per cent. of the Commonwealth area devoted to this crop; Victoria was next in importance with a percentage of 28; the remaining 12 per cent. being represented by Queensland, Western Australia, Tasmania, and New South Wales in the order named. The figures here given relate to the areas harvested for grain; only small areas are cropped for hay, while more considerable quantities are cut for green forage. These, however, are not included in this sub-section. The area under barley for grain in the several States from 1880 onwards is shewn in the following table :—

COMMONWEALTH AREA UNDER BARLEY, 1880-1 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1880-1 ..	8,056	68,630	1,499	13,074	6,363	8,297	105,919
1890-1 ..	4,937	87,751	584	14,472	5,322	4,376	117,442
1900-1 ..	9,435	58,853	7,533	15,352	2,536	4,502	98,211
1910-11 ..	7,082	52,687	5,578	34,473	3,369	5,235	108,424
1916-17 ..	5,195	93,015	12,674	103,627	11,105	4,637	230,253
1917-18 ..	6,370	84,931	7,702	95,654	5,028	5,185	204,870
1918-19 ..	7,980	100,198	1,316	130,357	7,982	7,036	254,869
1919-20 ..	5,354	85,323	3,275	157,897	9,167	6,293	267,309
1920-21 ..	5,969	93,954	15,908	202,079	10,686	6,151	334,747

2. **Total Yield.**—South Australia and Victoria are the only two States where the annual production of barley has averaged over 1,000,000 bushels for the past decade, the respective figures amounting to 1,769,709 and 1,674,060 bushels, the higher yield per acre in the latter State tending to diminish the advantage held by South Australia in regard to acreage. Particulars concerning the yields of the several States from 1880 onwards are as follows :—

COMMONWEALTH BARLEY CROP, 1880-1 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1880-1 ..	163,395	1,068,830	31,433	151,886	89,082	169,156	1,673,782
1890-1 ..	81,383	1,571,599	12,673	175,583	85,451	99,842	2,026,531
1900-1 ..	114,228	1,215,478	127,144	211,102	29,189	116,911	1,814,052
1910-11 ..	82,005	1,340,387	83,621	544,471	33,566	142,318	2,226,368
1916-17 ..	73,370	1,799,784	250,167	1,734,420	134,055	88,696	4,080,492
1917-18 ..	97,824	1,970,650	143,574	1,651,036	35,761	98,013	3,996,858
1918-19 ..	86,313	2,028,635	8,824	2,417,349	81,451	141,149	4,763,721
1919-20 ..	38,892	1,528,654	34,892	2,448,936	116,037	120,516	4,287,927
1920-21 ..	123,290	2,495,762	317,511	3,946,062	111,405	161,346	7,155,376

3. **Malting and other Barley.**—In recent years the statistics of all the States have distinguished between "malting" and "other" barley. Particulars for 1920-21 season are as follows :—

MALTING AND OTHER BARLEY, 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Malting barley ..	4,193	50,297	12,012	173,555	4,497	5,354	249,908
Other barley	1,776	43,657	3,896	28,524	6,189	797	84,839
Total ..	5,969	93,954	15,908	202,079	10,686	6,151	334,747
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Malting barley ..	91,370	1,306,210	233,790	3,427,523	44,196	145,772	5,248,861
Other barley	31,920	1,189,552	83,721	518,539	67,209	15,574	1,906,515
Total ..	123,290	2,495,762	317,511	3,946,062	111,405	161,346	7,155,376

Taking the Commonwealth as a whole, over 73 per cent. of the area devoted to this grain in 1920-21 was cropped for malting barley. The proportion varies considerably in the several States.

4. **Total Acreage and Yield.**—The following table sets out the total acreage and yield of malting and other barley in the Commonwealth as a whole during the past five seasons :—

AREA AND YIELD, MALTING AND OTHER BARLEY, COMMONWEALTH, 1916-17 TO 1920-21.

Season.	Acres.			Bushels.			Average Bushels per Acre.		
	Malting.	Other.	Total.	Malting.	Other.	Total.	Malting.	Other.	Total.
1916-17 ..	141,846	88,407	230,253	2,505,118	1,575,374	4,080,492	17.66	17.82	17.72
1917-18 ..	136,785	68,085	204,870	2,602,449	1,394,409	3,996,858	19.03	20.48	19.51
1918-19 ..	179,186	75,683	254,869	3,419,863	1,343,858	4,763,721	19.09	17.76	18.69
1919-20 ..	204,752	62,557	267,309	3,352,027	935,900	4,287,927	16.37	14.96	16.04
1920-21 ..	249,908	84,839	334,747	5,248,861	1,906,515	7,155,376	21.00	22.47	21.38
Average 10 seasons									
1911-21	148,937	64,627	213,564	2,749,462	1,175,659	3,925,121	18.46	18.19	18.38

For the past ten seasons the area and production of malting barley have represented slightly more than twice the corresponding figures for other barley. The average yield per acre differs very little in respect of the two classes of barley, malting obtaining a slight average advantage of 0.27 bushels per acre during the last ten years.

5. **Value of Barley Crop.**—The estimated value of the total barley crop of the Commonwealth for the seasons 1916-17 to 1920-21 was £734,154, £834,075, £1,221,863, £1,360,411, and £1,522,915. The extent to which the several States have contributed to the last total is shewn in the following table:—

VALUE OF BARLEY CROP,(a) 1920-21.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Total value ..	£27,310	£481,271	£104,501	£840,320	£30,521	£38,992	£1,522,915
Value per acre ..	£4/11/6	£5/2/5	£6/10/5	£4/3/2	£2/17/1	£6/6/9	£4/11/0

(a) Exclusive of the value of straw.

6. **Relation to Population.**—During the last five seasons the quantity of barley produced in the Commonwealth has averaged nearly 1 bushel per head of population. For the season 1920-21 the production ranged from 8 bushels per head in South Australia to 3½ pounds per head in New South Wales. Details for the years 1916-17 to 1920-21 are as follows:—

BARLEY PRODUCTION PER 1,000 OF POPULATION, 1916-17 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1916-17	39	1,281	369	3 924	437	453	830
1917-18	51	1,390	209	3,695	117	495	802
1918-19	44	1,411	13	5,282	263	696	937
1919-20	19	1,017	47	5,085	354	574	808
1920-21	59	1,633	21	8,034	337	758	1,322

7. **Commonwealth Imports and Exports.**—The Commonwealth oversea trade in barley is not large, though it shews signs of expansion during recent years. Occasionally the occurrence of drought renders a fairly large importation necessary, but during the past five years the average annual exports exceeded the imports by 1,000,000 bushels. Particulars of the Commonwealth overseas imports and exports of barley for the years 1916-17 to 1920-21 are contained in the following table:—

COMMONWEALTH IMPORTS AND EXPORTS OF BARLEY, 1916-17 TO 1920-21.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1916-17	58	9	256,804	52,891	256,746	52,882
1917-18	34	8	282,252	64,703	282,218	64,695
1918-19	456	203	176,478	49,573	176,022	49,370
1919-20	438	236	1,075,446	364,809	1,075,008	364,573
1920-21	20	45	3,209,734	778,615	3,209,714	778,570

From time to time an export trade in Australian pearl and Scotch barley has been carried on, the total exports for 1920-21 reaching 559,722 lbs., valued at £6,735. The trade for the year was mainly with the South African Union and New Zealand.

8. Commonwealth Imports and Exports of Malt.—In pre-war times the importations of malt into the Commonwealth were fairly extensive, the supply being obtained principally from the United Kingdom. Since the outbreak of the war in 1914, however, imports have continuously declined, and in 1917-18 and 1920-21 large quantities of malt were shipped to South Africa and Japan. Details of imports and exports for the years 1916-17 to 1920-21 are given hereunder:—

COMMONWEALTH IMPORTS AND EXPORTS OF MALT, 1916-17 TO 1920-21.

Year.	Imports.		Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.	£	Bushels.	£	Bushels.	£
1916-17	7,452	4,196	73	35	7,379	4,161
1917-18	35	106	117,075	47,626	-117,040	-47,520
1918-19 .. ..	..	1	..	..	..	1
1919-20 .. ..	..	..	..	..	..	..
1920-21	5	8	139,908	80,575	-139,903	-80,567

NOTE.—The minus sign (—) signifies net exports.

9. Comparison with other Countries.—In comparison with the barley production of other countries of the world, that of Australia appears very small indeed. Particulars for some of the leading countries for the year 1920 are as follows, the Australian figure being added for the sake of comparison:—

PRODUCTION OF BARLEY IN VARIOUS COUNTRIES, 1920.

Country.	Production of Barley.	Country.	Production of Barley.
	Bushels.		Bushels.
Russia in Europe (1916) ..	336,213,000	Jugo-Slavia	19,824,000
United States	181,758,800	Bulgaria	13,369,400
British India	143,404,800	Argentine Republic ..	10,714,600
Japan	88,454,800	Sweden	10,571,600
Spain	86,844,800	Egypt	10,030,600
Germany	79,051,400	Australia	7,155,376
United Kingdom	65,688,000	Greece	6,744,600
Canada	60,778,200	Italy	5,635,000
Rumania	60,675,000	Chile	5,169,400
France	40,014,800	Norway	5,166,600
French Morocco	38,059,200	Finland	4,784,000
Poland	37,736,800	Austria	4,216,600
Czecho-Slovakia	35,748,800	Belgium	4,176,400
Russia in Asia (1915) ..	35,452,000	Netherlands	2,633,000
Algeria	28,735,200	Tunis	2,513,200
Denmark	23,718,800	New Zealand	1,586,800
Hungary	21,682,200	Union of South Africa ..	1,091,400

10. **Average Yield of Barley per Acre in various Countries.**—The following table shows the average yield of barley per acre in various countries of the world, ranging from 46½ bushels in Netherlands to 2½ bushels in Tunis :—

AVERAGE YIELD OF BARLEY PER ACRE IN VARIOUS COUNTRIES, 1920.

Country.	Average yield per Acre.	Country.	Average yield per Acre.
	Bushels.		Bushels.
Netherlands	46.8	Spain	20.1
Belgium	46.2	Poland	19.4
Denmark	37.9	India	19.3
Chile	37.1	Rumania	18.4
New Zealand	33.9	Austria	17.7
Norway	33.2	Hungary	17.1
United Kingdom	32.1	Russia in Asia (1916)	16.9
Japan	29.6	Jugo-Slavia	16.8
Egypt	29.5	Finland	16.3
Germany	26.8	French Morocco	16.3
Sweden	26.3	Argentine Republic	16.1
Bulgaria	24.5	Russia in Europe (1916)	15.3
United States	23.9	Union of South Africa	12.0
Canada	23.8	Greece	11.6
France	22.8	Italy	11.4
Australia	21.4	Algeria	10.3
Czecho-Slovakia	20.9	Tunis	2.7

11. **Average Yield.**—The average yield per acre of barley varies considerably in the different States, being as a rule highest in Tasmania and Victoria, and lowest in Western Australia. Details for each State during the past five seasons, and for the decennium 1911–21, are given in the following table :—

AVERAGE YIELD PER ACRE OF BARLEY, 1916–17 TO 1920–21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
1916–17	14.12	19.35	19.74	16.74	12.07	19.13	17.72
1917–18	15.36	23.20	18.64	17.26	7.11	18.90	19.51
1918–19	10.82	20.25	6.71	18.54	10.20	20.06	18.69
1919–20	7.26	17.92	10.65	15.51	12.66	19.15	16.04
1920–21	20.66	26.56	19.96	19.53	10.43	26.23	21.38
Average for 10 seasons 1911–21	14.41	21.20	16.55	17.00	11.39	22.67	18.38

12. **Price of Barley.**—The average price of barley in the Melbourne market during each of the past five years is given in the following table :—

AVERAGE MELBOURNE PRICE OF BARLEY PER BUSHEL, 1916 TO 1920.

Particulars.	1916.	1917.	1918.	1919.	1920.
	s. d.	s. d.	s. d.	s. d.	s. d.
Malting barley	4 4½	4 4½	5 9	5 9½	7 3
Cape barley	3 1½	3 1½	4 0	4 6½	6 3

§ 8. Other Grain and Pulse Crops.

In addition to the grain crops already specified, the only grain and pulse crops at all extensively grown in the Commonwealth are beans, peas, and rye. The total area under the two former crops for the season 1920-21 was 30,359 acres, giving a yield of 577,344 bushels, or an average of 19.02 bushels per acre, being greater than the average yield for the decennium ended 1920-21, which was 15.91 bushels per acre. The States in which the greatest area is devoted to beans and peas are Tasmania, Victoria and South Australia. The total area under rye in the Commonwealth during the season 1920-21 was 5,546 acres, yielding 75,296 bushels, and giving an average of 13.58 bushels per acre. This was higher than the average for the past ten seasons, which was 11.02 bushels per acre. Over 41 per cent. of the rye grown during the season was produced in New South Wales and 27 per cent. in Victoria. In addition to these grain crops a small area of rice has for some years been cultivated in Queensland and the Northern Territory. The results obtained, however, have not up to the present been very satisfactory. Should rice-growing ever be seriously taken up in Australia, it is probable that large tracts of country in the northern parts of Queensland and Western Australia and in the Northern Territory will be found well suited to its cultivation.

§ 9. Potatoes.

1. **Area.**—The principal potato-growing State of the Commonwealth as regards area is Victoria; Tasmania, for some years prior to 1909-10, usually ranking second, and New South Wales third. The relative positions of the two latter States were, however, reversed during the five seasons ended 1913-14, but Tasmania again took the lead over New South Wales in 1914-15, and has maintained its position ever since.

The area under potatoes in each State from 1890 onwards is given hereunder:—

COMMONWEALTH AREA UNDER POTATOES, 1890-1 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1890-1 ..	19,406	53,818	6,270	6,626	511	20,133	..	106,764
1900-1 ..	29,408	38,477	11,060	6,628	1,794	23,068	..	110,435
1910-11 ..	44,452	62,904	8,326	7,812	1,791	26,230	..	151,515
1916-17 ..	22,437	73,618	8,908	4,737	5,838	34,345	12	149,895
1917-18 ..	22,558	66,966	10,738	4,164	4,484	27,309	22	136,241
1918-19 ..	20,877	51,620	6,434	3,275	3,936	25,023	2	111,169
1919-20 ..	20,036	53,918	4,432	3,411	3,585	28,511	7	113,900
1920-21 ..	27,667	62,687	8,770	4,811	4,254	32,000	6	140,195

(a) Includes 2 acres in Northern Territory.

2. **Total Yield.**—For the season 1920-21, Victoria's production represented about 46 per cent. of the total for the Commonwealth, Tasmania and New South Wales coming next in order with 23½ and 17 per cent. respectively. The total Commonwealth production for the season 1906-7 viz., 507,153 tons, was the highest ever attained, the yield which most nearly approached it being 449,383 tons in 1903-4. Details as to production in the several States during the period from 1890 onwards are as follows :—

COMMONWEALTH PRODUCTION OF POTATOES, 1890-1 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1890-1 ..	52,791	204,155	13,112	23,963	1,900	73,158	..	369,079
1900-1 ..	63,253	123,126	20,014	14,566	4,836	93,862	..	319,657
1910-11 ..	121,033	163,312	15,632	23,920	5,864	70,090	..	399,851
1916-17 ..	45,296	187,992	19,457	20,343	16,841	67,038	35	357,002
1917-18 ..	49,934	182,195	22,139	11,315	11,320	70,442	50	347,395
1918-19 ..	30,353	137,533	11,083	13,219	11,697	56,528	3	260,416
1919-20 ..	49,962	145,888	7,844	11,020	13,240	66,225	24	294,203
1920-21 ..	63,234	171,628	19,068	17,057	13,368	88,679	22	373,056

3. **Average Yield per Acre.**—The suitability of the soil, climate, and general conditions for potato growing is evidenced by the satisfactory yields per acre which are generally obtained in Australia, except in the most northerly portions, the average yield during the past ten seasons being 2.57 tons per acre. The lowest average yield is that obtained in Queensland with an average of 1.86 tons for the same period.

Particulars for each State for the seasons 1916-17 to 1920-21, and also for the past decennium, are given hereunder :—

AVERAGE YIELD OF POTATOES PER ACRE, 1916-17 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1916-17 ..	2.02	2.55	2.18	4.29	2.88	1.95	2.92	2.38
1917-18 ..	2.21	2.72	2.06	2.72	2.52	2.58	2.27	2.55
1918-19 ..	1.45	2.66	1.72	4.04	2.97	2.26	1.50	2.34
1919-20 ..	2.49	2.71	1.77	3.23	3.69	2.32	3.43	2.58
1920-21 ..	2.29	2.74	2.17	3.55	3.14	2.77	3.67	2.66
Average for 10 seasons 1911-21	2.14	2.79	1.86	3.26	3.03	2.53	1.99	2.57

4. **Value of Potato Crop.**—The estimated value of the potato crop of each State for the season 1920-21 is furnished in the following table, together with the value per acre :—

VALUE OF POTATO CROP, 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Ter.	C'wealth.
Total value ..	£385,730	£815,233	£329,876	£98,555	£145,377	£487,734	£130	£2,262,635
Value per acre	£13/18/10	£13/0/1	£37/12/3	£20/9/8	£34/3/6	£15/4/10	£21/13/4	£16/2/9

5. **Relation to Population.**—The average production of potatoes per annum per head of the population of the Commonwealth for the past five seasons has been approximately 142 lbs. In Tasmania, where this crop is of far greater importance in relation to population than is the case in any other State, the production per head in 1906-7 was nearly a ton, while for the past five seasons it has averaged about $6\frac{1}{2}$ cwt. Details for the seasons 1916-17 to 1920-21 are as follows:—

POTATO PRODUCTION PER 1,000 OF POPULATION, 1916-17 TO 1920-21

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	F. Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1916-17 ..	24	134	29	46	55	343	16	73
1917-18 ..	26	129	32	25	37	356	24	70
1918-19 ..	15	96	16	29	38	279	1	51
1919-20 ..	25	97	11	23	40	315	12	55
1920-21 ..	30	112	25	35	40	417	11	69

6. **Commonwealth Imports and Exports.**—Under normal conditions there is generally a fairly large export trade in potatoes carried on by the Commonwealth, principally with New Zealand, the Pacific Islands, and the Philippine Islands. On the other hand, when the recurrence of droughts causes a shortage in some of the States, large importations from New Zealand usually take place. The quantities and values of the Commonwealth overseas imports and exports of potatoes during the past five years are shown in the following table:—

COMMONWEALTH IMPORTS AND EXPORTS OF POTATOES, 1916-17 TO 1920-21.

Year.	Imports.		Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1916-17	91	951	4,492	37,579	4,401	36,628
1917-18	38	367	3,348	23,203	3,310	22,836
1918-19	308	3,570	6,742	50,308	6,434	46,738
1919-20	2,614	41,391	1,455	22,954	1,159	18,437
1920-21	56	746	1,130	13,222	1,074	12,476

NOTE.—The minus sign (—) signifies net imports.

§ 10. Other Root and Tuber Crops.

1. **Nature and Extent.**—Root crops, other than potatoes, are not extensively grown in Australia, the total area devoted to them for the season 1920-21 being only 18,549 acres. The principal of these crops are onions, mangolds, sugar beet, turnips, and "sweet potatoes" (*Batatas edulis*). Of these, onions and sugar beet are most largely grown in Victoria, turnips and mangolds in Tasmania, and sweet potatoes in Queensland. The total area under onions in the Commonwealth during the season 1920-21 was 9,061 acres, giving a yield of 49,088 tons, and averaging 5.42 tons per acre. The area devoted in 1920-21 to root crops other than potatoes and onions, viz., 9,488 acres, yielded 57,787 tons, and gave an average of 6.09 tons per acre. The areas and yields here given are exclusive of the production of "market gardens," a reference to which is made further on.

2. **Commonwealth Imports and Exports.**—The only root crop, other than potatoes, in which any considerable overseas trade is carried on by the Commonwealth is that of onions. During the past five years 3,569 tons, valued at £54,344, were imported, principally from New Zealand, Japan, and the United States, while during the same period, the exports totalled 18,823 tons, valued at £204,033, and were shipped mainly to New Zealand, the Pacific Islands, the Philippines, and the United States.

§ 11. Hay.

1. *Nature and Extent.*—As already stated, the most important crop of the Commonwealth is that of wheat grown for grain. Next to this in importance is the hay crop, which for the five seasons ended 1920-21 averaged more than 19·14 per cent. of the area under crop in the Commonwealth, and for 1920-21 itself, 21·45 per cent. In most European countries the hay crop consists almost entirely of meadow and other grasses, whilst in Australia a very large proportion of the area under hay comprises cereal crops, mainly wheat and oats. A considerable quantity of lucerne hay is also made, particularly in New South Wales and Queensland. The area under hay of all kinds in the several States from 1860 onwards is given hereunder :—

AREA UNDER HAY, 1860-1 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N.Ter.	F.Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1860-1	46,584	90,921	276	55,818	6,626	31,837	..	..	232,062
1870-1	65,404	163,181	3,671	140,316	17,173	33,612	..	..	423,357
1880-1	131,153	249,656	12,022	272,567	19,563	31,615	..	..	716,576
1890-1	175,242	413,052	31,106	345,150	23,183	45,381	..	..	1,033,114
1900-1	466,236	502,105	42,497	341,330	104,254	61,541	..	..	1,517,963
1910-11	638,577	832,669	98,558	440,177	175,432	72,992	..	..	2,258,405
1916-17	857,533	897,186	112,964	483,040	240,726	79,274	140	999	2,671,862
1917-18	619,614	748,808	96,431	407,011	265,899	74,107	14	1,030	2,212,914
1918-19	813,379	984,479	54,772	501,731	249,796	87,136	30	1,581	2,692,904
1919-20	936,800	1,116,998	48,843	590,835	327,498	102,908	100	1,671	3,125,653
1920-21	853,109	1,333,397	94,212	570,865	266,824	113,618	10	1,154	3,233,189

It will be seen from this table that in all the States marked fluctuations occur in the area devoted to the hay crop from year to year. These fluctuations are due to various causes, the principal being the variations in the relative prices of grain and hay, and the favourableness or otherwise of the season for a grain crop. Thus, crops originally sown for grain are frequently cut for hay owing to the improved price of that commodity, or owing to the fact that the outlook for the due development of the grain is not satisfactory. On the other hand, improved grain prices or the prospect of a heavy yield will frequently cause crops originally intended for hay to be left for grain. The area under hay in the Commonwealth for the season 1915-16 was the highest on record, that for 1920-21 the next highest, while the 1912-13 acreage occupied third position.

2. *Kinds of Hay.*—Particulars concerning the kinds of crop cut for hay are furnished in the returns prepared by five of the States. In the case of Tasmania the bulk consists of oaten hay; full particulars, however, are not available for that State.

Details for the past five seasons are given in the following table :—

KINDS OF HAY GROWN, 1916-17 TO 1920-21.

Kind of Hay Crop.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	Acres.	Acres.	Acres.	Acres.	Acres.
NEW SOUTH WALES—					
Wheaten	633,438	434,908	612,771	716,770	520,417
Oaten	160,898	118,209	152,057	172,310	259,022
Barley	866	843	1,238	1,750	1,832
Lucerne	61,584	64,668	46,336	46,555	70,995
Other	747	986	977	1,086	843
Total	857,533	619,614	813,379	938,471	853,109

KINDS OF HAY GROWN, 1916-17 TO 1920-21—*continued.*

Kind of Hay Crop.		1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
		Acres.	Acres.	Acres.	Acres.	Acres.
VICTORIA—						
Wheaten	.. ..	195,532	192,478	274,320	417,221	165,506
Oaten	.. ..	672,905	532,634	691,808	681,179	1,140,578
Lucerne, etc.	.. ..	28,749	23,696	18,351	18,598	27,317
Total	.. ..	897,186	748,808	984,479	1,116,998	1,333,397
QUEENSLAND—						
Wheaten	.. ..	21,047	7,247	1,902	11,710	14,024
Oaten	.. ..	30,041	10,901	1,803	2,488	19,229
Lucerne	.. ..	55,928	73,347	48,264	29,348	53,059
Other	.. ..	5,948	4,936	2,803	5,297	7,900
Total	.. ..	112,964	96,431	54,772	48,843	94,212
SOUTH AUSTRALIA—						
Wheaten	.. ..	323,633	292,803	358,068	450,371	329,543
Oaten	.. ..	148,881	107,284	138,507	134,775	231,446
Lucerne	.. ..	2,855	2,123	2,106	2,167	3,938
Other	.. ..	7,671	4,801	3,050	3,522	5,938
Total	.. ..	483,040	407,011	501,731	590,835	570,865
WESTERN AUSTRALIA—						
Wheaten	.. ..	188,272	208,303	190,399	234,772	169,264
Oaten	.. ..	51,255	56,002	58,551	91,152	96,228
Lucerne	.. ..	230	352	137	206	146
Other	.. ..	969	1,242	709	1,368	1,186
Total	.. ..	240,726	265,899	249,796	327,498	266,824

It will be seen that wheaten hay is the principal hay crop in New South Wales, South Australia, and Western Australia, oaten hay in Victoria and Tasmania, and lucerne in Queensland.

3. **Total Yield.**—The Commonwealth hay crop for the season 1915-16 was the highest on record, and amounted to 5,633,988 tons. The second in importance was 4,686,366 tons for the season 1920-21, while the third was 3,955,311 tons for 1912-13. For many years past the State of Victoria has been the largest hay producer in the Commonwealth, and in the five seasons, 1916-17 to 1920-21 inclusive, accounted for nearly 39 per cent. of the total production. The total yields of the several States from 1860 onwards are given hereunder:—

COMMONWEALTH HAY CROP, 1860-1 TO 1920-21.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.Ter.	F.Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1860-1	50,927	144,211	414	71,241	8,099	62,318	..	..	337,210
1870-1	69,602	183,708	5,506	197,149	20,833	40,763	..	..	517,561
1880-1	174,194	300,581	23,441	261,371	19,563	35,883	..	..	815,033
1890-1	213,034	567,779	50,116	310,125	25,014	52,021	..	..	1,218,089
1900-1	526,260	677,757	78,758	353,662	103,813	94,198	..	..	1,834,448
1910-11	843,080	1,292,410	151,252	595,064	178,891	115,190	..	..	3,175,887
1916-17	1,172,078	1,232,721	145,279	615,059	236,989	103,141	350	1,972	3,607,589
1917-18	781,972	949,545	153,895	488,693	267,163	80,405	14	2,234	2,723,921
1918-19	751,247	1,113,861	92,230	567,941	250,014	115,896	30	2,383	2,893,602
1919-20	578,605	1,242,489	41,804	598,954	379,025	143,053	500	2,354	2,986,784
1920-21	1,372,836	1,984,854	116,709	769,050	264,244	176,798	20	1,855	4,686,366

4. **Value of Hay Crop.**—The following table furnishes particulars concerning the total value and the value per acre of the hay crop of the several States of the Commonwealth for the season 1920-21 :—

VALUE OF HAY CROP, 1920-21.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	Fed. Ter.	C'wealth.
	£	£	£	£	£	£	£	£	£
Total value ..	9,366,710	7,443,202	1,242,950	2,787,806	1,800,907	869,714	25	15,370	23,526,684
Value per acre	£10/19/7	£5/11/8	£13/3/10	£4/17/8	£6/15/10	£7/13/1	£2/10/-	£13/6/5	£7/5/6

5. **Average Yield per Acre.**—The States of the Commonwealth in which the highest average yields per acre have been obtained during the last decennium are those of Tasmania and Queensland, these being also the States in which the smallest areas are devoted to this crop. For the same period the lowest yield for the Commonwealth as a whole was that of 13 cwt. per acre in 1914-15; while the highest was that of 31½ cwt. in 1915-16, followed closely by the 29 cwt. obtained in 1920-21. The average for the decennium was 24 cwt. Particulars for the several States for the seasons 1916-17 to 1920-21, and the average for the last ten years, are given hereunder :—

AVERAGE YIELD OF HAY PER ACRE, 1916-17 TO 1920-21.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'with.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1916-17	1.37	1.37	1.29	1.27	0.98	1.30	2.50	1.97	1.31
1917-18	1.26	1.27	1.60	1.20	1.00	1.08	1.00	2.17	1.23
1918-19	0.92	1.13	1.68	1.13	1.00	1.33	1.00	1.51	1.07
1919-20	0.62	1.11	0.86	1.01	1.16	1.39	5.00	1.41	0.96
1920-21	1.61	1.49	1.24	1.35	0.99	1.56	2.00	1.61	1.45
Average for 10 seasons									
1911-21	1.15	1.29	1.34	1.15	1.00	1.40	2.51	1.32	1.20

6. **Relation to Population.**—During the past five seasons the Commonwealth hay production per head of population has varied between 11 cwt. in 1916-17 and 17½ cwt. in 1920-21; averaging about 13 cwt. per head for the period. The State in which the hay production per head of population is highest is South Australia. Details for the seasons 1916-17 to 1920-21 are given hereunder :—

HAY PRODUCTION PER 1,000 OF POPULATION, 1916-17 TO 1920-21.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1916-17	622	877	214	1,392	773	527	75	887	713
1917-18	407	670	224	1,094	872	406	3	1,062	547
1918-19	383	775	131	1,241	807	571	6	1,068	569
1919-20	284	827	57	1,244	1,158	681	110	1,227	563
1920-21	657	873	155	1,566	799	831	5	941	866

7. **Oversea Imports and Exports.**—Under normal conditions hay, whether whole or in the form of chaff, is somewhat bulky for oversea trade, and consequently does not in such circumstances figure largely amongst the imports and exports of the Commonwealth. During 1920-21, 76 tons were imported, while the exports amounted to 2,128 tons, valued at £16,721, the principal purchases being made by India, the Straits Settlements, Ceylon and the Dutch East Indies.

8. **Hay Production in Other Countries.**—As already noted, the hay crops of most European countries consist of grasses of various kinds, amongst which clover, lucerne, sainfoin and rye grass occupy prominent places. The statistics of hay production in these countries are not prepared on a uniform basis, and consequently any attempt to furnish extensive comparisons would be misleading. It may be noted, however, that in Great Britain the production of hay from clover, sainfoin, etc., for the year 1921 amounted to 2,725,000 tons from 2,168,092 acres, while from permanent grasses a yield of 3,400,000 tons of hay was obtained from 4,195,414 acres, giving a total of 6,125,000 tons from 6,363,506 acres, or about 19½ cwt. per acre.

§ 12. Green Forage.

1. **Nature and Extent.**—In all the States of the Commonwealth a considerable area is devoted to the production of green forage, mainly in connexion with the dairying industry. The total area so cropped during the season 1920-21 was 406,954 acres. Of the total, the Queensland area represented about 35 per cent., that of New South Wales 27½ per cent., while that of Victoria amounted to 19½ per cent. Under normal conditions the principal crops cut for green forage are maize, sorghum, oats, barley, rye, rape, and lucerne, while small quantities of sugar-cane also are so used. Particulars concerning the area under green forage in the several States from 1890 onwards are furnished in the following table:—

AREA UNDER GREEN FORAGE, 1890-1 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1890-1	37,473	10,091	9,546	7,349	161	1,497	..	..	66,117
1900-1	78,144	18,975	41,445	13,136	1,024	3,749	..	..	156,473
1910-11	179,382	71,826	89,667	20,728	4,545	8,416	19	..	374,583
1916-17	149,824	49,667	116,449	37,352	28,653	8,017	24	49	390,035
1917-18	152,500	55,903	87,909	41,869	29,856	5,676	47	19	373,779
1918-19	331,079	73,641	90,635	56,067	28,141	6,827	..	50	586,440
1919-20	1,007,407	89,802	157,568	114,126	27,007	5,271	..	28	1,401,209
1920-21	112,003	79,524	142,554	40,678	26,620	5,575	..	..	406,954

2. **Value of Green Forage Crops.**—The value of these crops is variously estimated in the several States, and the Commonwealth total for the season 1920-21 may be taken approximately as £1,752,134, or about £4 6s. 1d. per acre.

3. **Relation to Population.**—Particulars concerning the area under green forage per 1,000 of the population of the Commonwealth and the several States for the seasons 1916-17 to 1920-21 are given hereunder:—

AREA UNDER GREEN FORAGE PER 1,000 OF POPULATION, 1916-17 TO 1920-21.

Season.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1916-17 ..	79	35	172	85	93	41	5	22	79
1917-18 ..	79	39	128	94	97	29	10	9	75
1918-19 ..	169	51	128	113	91	34	..	22	115
1919-20 ..	494	60	214	237	82	25	..	15	264
1920-21 ..	54	52	190	83	80	26	..	..	75

§ 13. Sugar-cane.

1. **Area.**—Sugar-cane is grown for sugar-making purposes in only two of the States of the Commonwealth, viz., Queensland and New South Wales, and much more extensively in the former than in the latter. Thus, of the total area of 174,001 acres under sugar-cane in the Commonwealth for the season 1920-21, there were 162,619 acres, or about 93½ per cent, in Queensland. Sugar-cane growing appears to have been started in the Commonwealth in or about 1862, as the earliest statistical record of sugar-cane as a crop is that which credits Queensland with an area of 20 acres for the season 1862-3. In the following season the New South Wales records shew that an area of two acres was devoted to the crop in the mother State. The area under cane in New South Wales reached its maximum in 1895-6 with a total of 32,927 acres. From thence onwards with slight variations, it gradually fell to 11,382 acres in 1920-21. In Queensland, on the other hand, although fluctuations in area are in evidence throughout, the general trend has been one of satisfactory increase, the area under cane for the season 1917-18 being the highest on record. The area under sugar-cane in the Commonwealth from 1870 is given in the following table :—

AREA UNDER SUGAR-CANE, 1870-1 TO 1920-21.

Season.	New South Wales.		Queensland.		Commonwealth.		
	Productive.	Unproductive.	Productive.	Unproductive.	Productive.	Unproductive.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1870-1 ..	1,475	2,607	2,188	4,154	3,663	6,761	10,424
1880-1 ..	4,465	6,506	12,306	7,918	16,771	14,424	31,195
1890-1 ..	8,344	12,102	39,435	11,487	47,779	23,589	71,368
1900-1 ..	10,472	11,642	72,651	35,884	83,123	47,526	130,649
1910-11 ..	5,596	8,167	94,641	47,138	100,237	55,305	155,542
1916-17 ..	5,223	5,746	75,914	91,307	81,137	97,053	178,190
1917-18 ..	5,588	5,008	108,707	67,055	114,295	72,063	186,358
1918-19 ..	4,566	5,924	111,572	48,962	116,138	54,886	171,024
1919-20 ..	4,827	5,741	84,877	63,592	89,704	69,333	159,037
1920-21 ..	5,519	5,863	89,142	73,477	94,661	79,340	174,001

2. **Productive and Unproductive Cane.**—The areas given in the preceding table represent the area on which sugar-cane was grown during the seasons specified for purposes other than green forage. The whole area was not in any case cut for crushing during that season, there being always a considerable amount of young and "stand over" cane, as well as a small quantity required for plants. The season 1917-18 had the highest recorded acreage under sugar-cane, but the greatest area of productive cane was cut for crushing during the 1918-19 season.

3. **Yield of Cane and Sugar.**—Queensland statistics of the production of sugar-cane are not available for dates prior to the season 1897-8. In that season the total for the Commonwealth was 1,073,883 tons, as against 2,879,092 tons for the record season 1917-18. The second highest yield was in the season 1913-14, with a total of 2,271,558 tons. The average production of cane during the decennium ended 1920-21 was 1,770,653

tons. The three highest yields of sugar were in 1917-18, 1913-14, and 1914-15, the quantities being 327,589 tons, 265,029 tons, and 245,876 tons respectively. The decennial average was 206,940 tons of sugar. Particulars relative to the total yields of cane and sugar for a series of years are as follows:—

YIELD OF CANE AND CANE-SUGAR, 1900-1 TO 1920-21.

Season.	New South Wales.		Queensland.		Commonwealth.	
	Cane.	Sugar.	Cane.	Sugar.	Cane.	Sugar.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1900-1	199,118	19,938	848,328	92,554	1,047,446	112,492
1910-11	160,311	20,115	1,840,447	210,756	2,000,758	230,871
1916-17	143,558	16,064	1,579,514	176,973	1,723,072	193,037
1917-18	174,881	19,875	2,704,211	307,714	2,879,092	327,589
1918-19	105,234	12,278	1,674,829	189,978	1,780,063	202,256
1919-20	91,321	10,837	1,258,760	162,136	1,350,081	172,973
1920-21	131,313	15,124	1,339,455	167,401	1,470,768	182,525

It is gratifying to be able to record that the climatic conditions in the sugar areas were very much better in 1921-22 than in any year since 1917. In consequence, a bountiful harvest has been gathered. The ideal weather conditions have enabled the growers to reap the benefits of the increased price paid for sugar, which latter has had a most stimulating effect upon the industry, placing it upon a sounder and more prosperous footing than it has been for many years. From statistics available the area under sugar-cane in 1921-22 amounted to 196,000 acres, surpassing the previous highest area in 1917-18 by about 10,000 acres, while the production totalled 2,439,416 tons of cane yielding 299,198 tons of sugar, which has only been exceeded on one previous occasion.

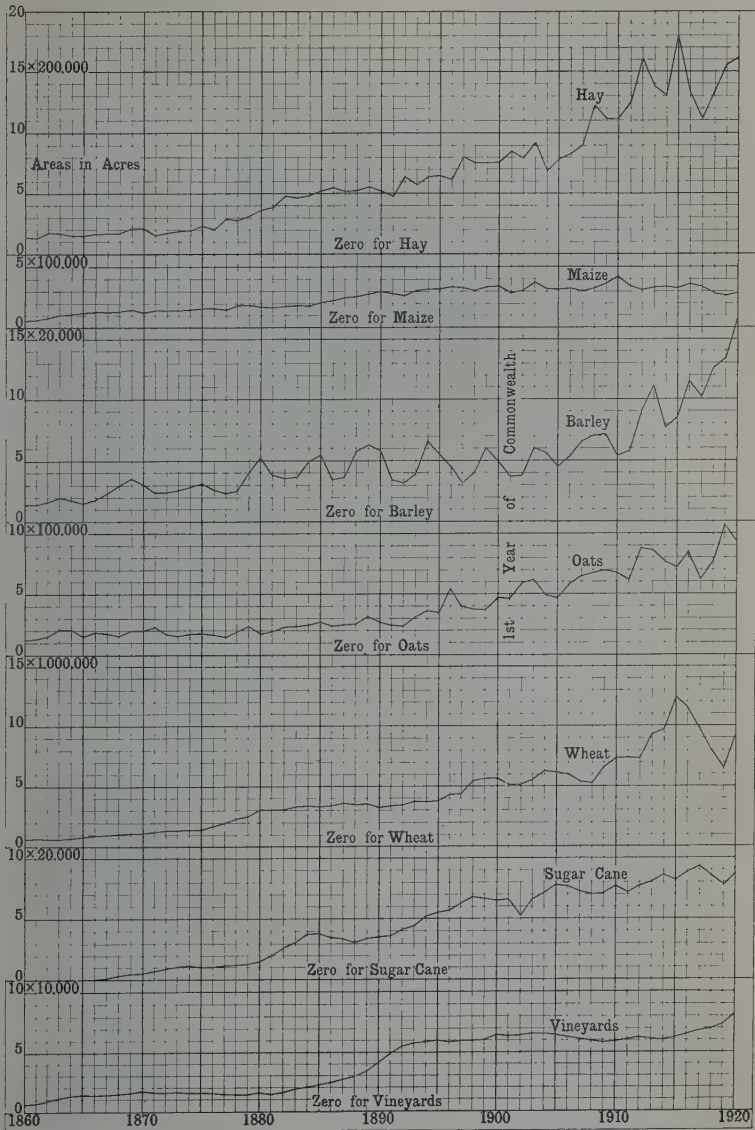
Large quantities of molasses are produced as a by-product in the sugar mills; details giving the quantity produced and proportions used for distilling, fuel, manure and other purposes for a series of years will be found in Section XIII.—“Manufacturing Industries.”

4. **Average Yields of Cane and Sugar per Acre.**—The average yield per acre of productive cane is much higher in New South Wales than in Queensland, the average during the last decade being 26.39 tons for the former and 17.11 for the latter State. For some years prior to 1910-11, the yield remained practically constant in New South Wales at about 21 tons per acre. Since that year, the average yield per acre has shewn an upward tendency, reaching 30 tons or over during 1913-14, 1914-15, and 1917-18. The climatic conditions affecting the tremendous length of coastline embracing this industry in Queensland are largely responsible for the great variations in the yields of sugar for that State, which ranged, during the past decennium, from 12.20 tons per acre in 1915-16 to 24.88 tons in 1917-18.

The greatest production of sugar per acre crushed in the Commonwealth during the past quinquennium occurred in 1917-18, when 2.87 tons were obtained, the respective crushings for New South Wales and Queensland averaging 3.56 and 2.83 tons. The average yield per acre for the past ten years was 3.07 tons in New South Wales, and 2.06 tons in Queensland.

5. **Quality of Cane.**—The quantity of cane required to produce a ton of sugar varies not only with the district in which the cane is grown but also with the season, and for the decennium ended 1920-21 averaged 8.56 tons, the average production of sugar being approximately 11½ per cent. of the weight of cane crushed. The systematic study of beet culture in European countries has shewn that by suitable methods the sugar

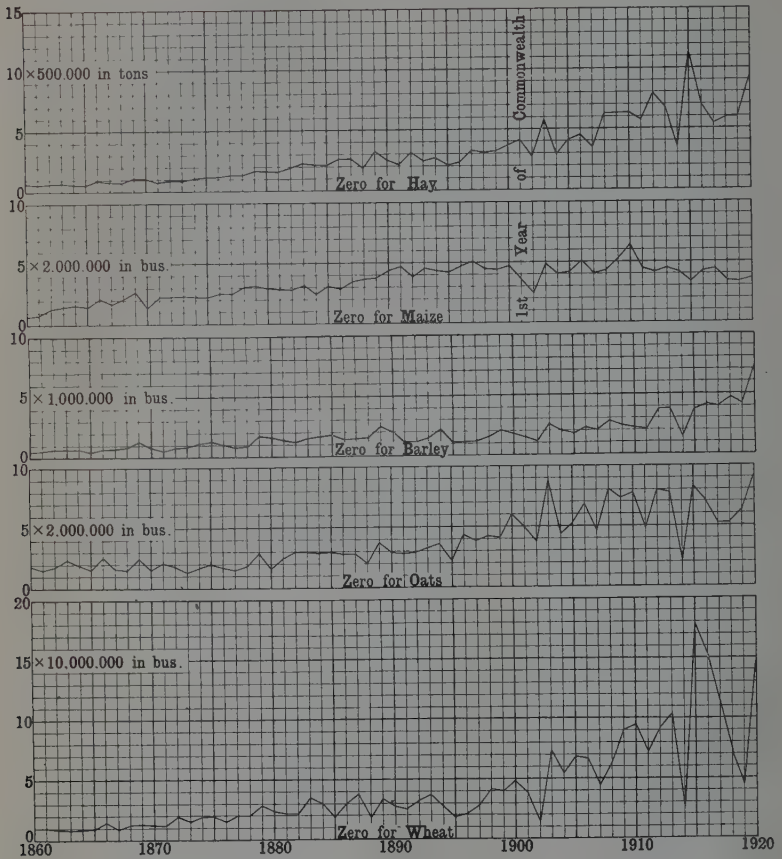
GRAPHS SHEWING THE AREA UNDER THE PRINCIPAL CROPS IN THE COMMONWEALTH FROM 1860-1 TO 1920-21.



(See pages—for wheat, 244; oats, 254; maize, 258; barley, 261; hay, 269; sugar-cane, 273; and vineyards, 279.)

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year, while the vertical height represents a number of acres, varying with the nature of the crop in accordance with the scale given on the left-hand of the diagram. The height of each graph above the base line denotes, for the crop to which it relates, the total area under cultivation in the Commonwealth during the successive seasons.

GRAPHS SHEWING THE PRODUCTION OF THE PRINCIPAL CROPS IN THE COMMONWEALTH
FROM 1860-1 TO 1920-21.



(See pages—for wheat, 245; oats, 254; maize, 258; barley, 261; and hay, 270.)

EXPLANATION OF GRAPHS.—In this diagram a separate base line is provided for each of the crops dealt with. In each instance the base of a small square represents an interval of one year, the vertical height of such square representing in the case of wheat 10,000,000 bushels; oats, 2,000,000 bushels; barley, 500,000 bushels; maize, 2,000,000 bushels; and hay, 500,000 tons. The height of each graph above its base line denotes the aggregate yield in the Commonwealth of that particular crop during the successive seasons.

contents of the root can be greatly increased, and it is believed that a similar improvement can be effected in the yield from sugar-cane.

AVERAGE YIELD OF SUGAR-CANE AND SUGAR PER ACRE, 1900-1 TO 1920-21.

Season.	New South Wales.			Queensland.			Commonwealth.		
	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.	Cane per acre Crushed.	Sugar per acre Crushed.	Cane to each ton of Sugar.
1900-1	Tons. 19.01	Tons. 1.90	Tons. 9.99	Tons. 11.68	Tons. 1.27	Tons. 9.17	Tons. 12.60	Tons. 1.35	Tons. 9.31
1910-11	28.65	3.59	7.97	19.45	2.23	8.73	19.96	2.30	8.67
1916-17	27.49	3.08	8.94	20.81	2.33	8.93	21.24	2.38	8.93
1917-18	31.30	3.56	8.80	24.98	2.83	8.79	25.19	2.87	8.79
1918-19	23.05	2.69	8.57	15.01	1.70	8.82	15.33	1.74	8.80
1919-20	18.92	2.25	8.43	14.83	1.91	7.76	15.05	1.93	7.81
1920-21	23.79	2.74	8.68	15.03	1.88	8.00	15.54	1.93	8.06
Average 10 seasons 1911-21	26.39	3.07	8.61	17.11	2.00	8.55	17.62	2.06	8.56

6. Relation to Population.—The sugar production of the Commonwealth during the past five seasons has averaged about 95 lbs. per head of population. In the same period in Queensland, the principal sugar-producing State, the production of sugar per head has ranged between 492 lbs. in 1919-20 and 1,002 lbs. in 1917-18. Details for the period 1916-17 to 1920-21 are as follows:—

SUGAR PRODUCTION PER HEAD OF POPULATION, 1916-17 TO 1920-21.

State.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales	19	23	14	12	16
Queensland	585	1,002	603	492	498
Commonwealth	88	147	89	73	76

7. Sugar Bounties.—The provision of bounties or similar aids to the sugar-growers of the Commonwealth early occupied the attention of the Commonwealth Parliament, the object in view being that of assisting the industry, and at the same time diminishing the employment of coloured labour in connexion therewith. An account of the various Acts in connexion with sugar bounties and sugar excise tariffs will be found on pages 394 to 396 of Year Book No. 6. In 1912 the Sugar Excise Repeal Act and the Sugar Bounty Abolition Act were passed by the Federal Parliament, conditionally on the Queensland Parliament approving of legislation prohibiting the employment of coloured labour in connexion with the industry. The State Sugar Cultivation Act, the Sugar Growers Act, and the Sugar Growers' Employees Act, of 1913, having been approved of, the 1912 Federal Acts, which repeal all previous enactments in regard to excise on sugar and bounty on cane, came into force by proclamation in July, 1913.

8. Sugar Purchase by Commonwealth Government.—In June, 1915, the Commonwealth Government assumed control of the Australian sugar output, paying the growers a fixed price of £18 per ton of raw sugar, subsequently raised in 1917 to £21. The

Commonwealth Government disposed of the refined product at an average of £25 10s. per ton in 1915, the object then being to enable the consumer to purchase sugar of 1A grade at 3d. per lb. In January, 1916, however, the wholesale price was raised to £29 5s. per ton, and the retail price to 3½d. per lb. This arrangement was continued from year to year until June 26th, 1920, when an agreement was made with the Queensland Government for a period of three years, covering the seasons of 1920, 1921, and 1922, fixing the price of raw sugar for the first year at £30 6s. 8d. per ton, and making that price the minimum for each of the succeeding seasons, any increase being limited to the extra cost of production, due to higher wages paid to the sugar workers to meet the increased cost of living. In order to recoup the Commonwealth Government for the loss entailed in the purchase at very high prices of large quantities of foreign sugar, owing to the shortage of the Australian crop, the wholesale price of refined sugar was raised on March 25th, 1920, to £49 per ton, and the retail price to 6d. per lb.

9. **Beet Sugar.**—During the past few years an effort has been made to revive the sugar-beet industry in Victoria. The State Government is proceeding with a comprehensive irrigation scheme at Maffra, where the sugar-beet factory is situated. When completed, this scheme will make available for beet growing large areas of land hitherto unsuitable. The price of beet has risen to 35s per ton with the prospect of a further increase. A fine grade of white sugar is manufactured, and considerable quantities of beet pulp and molasses are distributed for stock feed.

10. **Acreage and Yield of Sugar Beet.**—The following table shews the acreage under sugar beet, and the production in Victoria during the past five seasons :—

AREA AND PRODUCTION OF SUGAR BEET IN VICTORIA, 1916-17 TO 1920-21.

Particulars.		1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Area harvested .. acres		1,320	1,200	1,009	1,090	1,180
Production .. tons		15,159	14,487	12,290	13,195	7,147
Average per acre .. "		11.48	12.07	12.18	12.11	6.06
Sugar produced .. "		1,948	1,650	1,263	1,551	833

Owing to an absence of soaking sub-soil rains and a very dry autumn, the crops were very disappointing last season, but a large area is under preparation for next season.

11. **Imports and Exports of Sugar.**—The production of sugar in the Commonwealth during the past five years has not been sufficient to supply the growing requirements of Australian consumption. It has been found necessary to annually import on the average some 75,723 tons, valued at £2,777,956, the principal countries engaged in supplying this commodity being Java and Fiji. Particulars concerning the imports and exports of cane sugar for the past five years are as follows :—

IMPORTS AND EXPORTS OF CANE SUGAR, 1916-17 TO 1920-21.

Year.	Oversea Imports.		Oversea Exports.		Net Imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£
1916-17 ..	81,161	1,639,097	1,033	21,798	80,128	1,617,299
1917-18 ..	15,805	278,985	2,070	45,860	13,735	233,125
1918-19 ..	52,569	1,052,124	2,029	52,136	50,540	999,988
1919-20 ..	112,805	4,359,203	2,825	83,729	109,980	4,275,474
1920-21 ..	116,274	6,560,373	4,190	220,965	112,084	6,339,408

§ 14. Vineyards.

1. *Nature and Extent.*—The introduction of the vine into Australia has been set down by different investigators as at various dates, the years 1815 and 1828 being principally favoured. It would seem, however, that the vine was really brought out with the first fleet which initiated the colonisation of Australia in 1788, and that consequently the Australian vine is as old as Australian settlement. As already mentioned, a report of Governor Hunter's gives the area under vines in 1797 as 8 acres. From New South Wales the cultivation spread to Victoria and South Australia, and these States have now far outstripped the mother State in the area which they have devoted to its cultivation. In Queensland and Western Australia also, vine-growing has been carried on for many years, but the progress of the industry in these States has been negligible. In Tasmania the climate is not favourable to the growth of grapes. The purposes for which grapes are grown in Australia are three in number, viz.—(i) for wine-making, (ii) for table use, and (iii) for drying. The total area under vines in the several States from 1860 onwards is given in the following table:—

COMMONWEALTH VINEYARDS, 1860-1 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	There are no vineyards in Tasmania.	Acres.
1860-1	1,584	1,138	..	3,180	335		6,237
1870-1	4,504	5,466	416	6,131	710		17,227
1880-1	4,800	4,980	739	4,337	659		15,515
1890-1	8,044	20,686	1,981	9,535	1,024		41,270
1900-1	8,441	30,634	2,019	20,158	3,325		64,577
1910-11	8,321	23,412	1,634	22,952	2,795		59,114
1916-17	8,666	23,264	1,256	29,177	3,031		65,394
1917-18	8,594	25,236	1,274	29,762	2,996		67,862
1918-19	8,740	26,072	1,287	31,023	2,936		70,058
1919-20	8,923	27,441	1,203	32,784	2,975		73,326
1920-21	10,783	29,255	1,256	36,661	3,210		81,165

The area devoted to vines in the Commonwealth amounted to 65,673 acres in 1904-5. From that year onwards a gradual decline set in, and at the end of 1914-15, ten years later, the acreage had decreased to 60,985. Since that date, however, as the result of satisfactory annual increases, the 1904-5 figure has been exceeded, and the 1920-21 total represents the maximum area planted with vines.

The wine-growing industry in Australia, more particularly in Victoria and New South Wales, received a severe check by various outbreaks of phylloxera. With a view to the eradication of this disease extensive uprooting of vineyards in the infested areas was undertaken, while further planting within such areas, except with phylloxera-resistant vines, was prohibited.

2. *Wine Production.*—The production of wine in Australia has not increased as rapidly as the suitability of soil and climate would appear to warrant. The cause of this is probably twofold, being in the first place due to the fact that the Australians are not a wine-drinking people and consequently do not provide a local market for the product, and in the second to the fact that the new and comparatively unknown wines of Australia find it difficult to establish a footing in the markets of the old world, owing to the competition of well-known brands. Active steps are being taken in various ways to bring the Australian wines under notice, and it may be confidently expected that when

their qualities are duly recognised the wine production of this country will exhibit a rapid development. Particulars concerning the quantity of wine produced in the several States during the past five seasons are contained in the table given hereunder :—

AUSTRALIAN WINE PRODUCTION, 1916-17 TO 1920-21.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	No production of wine in Tasmania.	Gallons.
1916-17 ..	628,950	1,302,660	23,171	2,951,048	220,439		5,126,268
1917-18 ..	538,210	800,068	39,125	5,331,166	156,532		6,865,101
1918-19 ..	555,770	1,349,309	44,491	6,544,125	199,142		8,692,837
1919-20 ..	717,893	1,634,680	48,495	5,085,939	162,397		7,649,404
1920-21 ..	674,188	2,222,305	71,403	7,893,345	152,979		11,014,220

3. Relation to Population.—In relation to population the areas of the vineyards of the several States exhibit an upward tendency during the last five years, the Commonwealth total increasing from 13 to 15 acres per 1,000 of the population during the same period. Details for the seasons 1916-17 to 1920-21 are furnished in the succeeding table :—

AREA OF VINEYARDS PER 1,000 OF POPULATION, 1916-17 TO 1920-21.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1916-17 ..	5	17	2	66	10	..	13
1917-18 ..	4	18	2	67	10	..	14
1918-19 ..	4	18	2	68	9	..	14
1919-20 ..	4	18	2	68	9	..	14
1920-21 ..	5	19	2	75	10	..	15

4. Imports and Exports.—The principal countries of origin of wine imported into Australia are France, Spain, Portugal, and Italy, the greater portion of the sparkling wines coming from France. Particulars relative to the importations of wine into the Commonwealth during the past five years are given hereunder :—

COMMONWEALTH IMPORTS OF WINE, 1916-17 TO 1920-21.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1916-17 ..	18,659	47,741	66,400	39,212	26,497	65,709
1917-18 ..	9,274	31,808	41,082	20,569	20,635	41,204
1918-19 ..	7,551	30,464	38,015	16,226	21,121	37,347
1919-20 ..	34,383	57,211	91,594	118,164	50,112	168,276
1920-21 ..	39,665	63,824	103,489	135,169	58,248	193,417

The principal countries to which wine is exported from Australia are the United Kingdom and New Zealand, a small but fairly regular export trade being also carried on with India, Ceylon, Fiji, and the South Sea Islands. Details concerning the exports of wine from Australia during the past five years are given in the following table :—

COMMONWEALTH EXPORTS OF WINE, 1916-17 TO 1920-21.

Year.	Quantity.			Value.		
	Sparkling.	Other.	Total.	Sparkling.	Other.	Total.
	Gallons.	Gallons.	Gallons.	£	£	£
1916-17 ..	2,919	603,523	606,442	5,426	106,200	111,626
1917-18 ..	4,976	367,738	372,714	8,269	93,618	101,887
1918-19 ..	7,970	695,536	703,506	16,883	184,285	201,168
1919-20 ..	6,112	795,049	801,161	12,482	221,741	234,223
1920-21 ..	9,669	1,098,678	1,108,347	19,105	291,856	310,961

5. Other Viticultural Products.—In addition to grapes for wine-making purposes, large quantities are grown in all the States for table use, while, particularly in Victoria and South Australia, the drying of raisins and currants is also carried on. The quantities of table grapes grown in the several States during the past five seasons are as follows :—

TABLE GRAPES, 1916-17 TO 1920-21.

Season.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1916-17 ..	2,214	2,606	668	758	1,940	..	8,186
1917-18 ..	1,710	1,127	696	984	1,570	..	6,087
1918-19 ..	2,415	2,052	614	1,745	1,892	..	8,718
1919-20 ..	2,678	3,502	613	1,129	2,161	..	10,083
1920-21 ..	2,660	2,471	649	955	2,088	..	8,823

Statistics of the quantities of raisins and currants dried during each of the past five seasons are given in the following table :—

RAISINS AND CURRANTS DRIED, 1916-17 TO 1920-21.

Season.	N.S. Wales.		Victoria.		South Aust.		Western Aust.		Commonwealth.	
	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.	Raisins.	Currants.
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
1916-17 ..	4,239	2,276	142,970	66,449	35,624	50,147	1,332	1,843	184,165	120,715
1917-18 ..	3,508	1,904	104,911	53,799	42,192	51,924	703	1,948	151,314	109,575
1918-19 ..	3,496	2,450	135,060	68,234	29,662	59,834	2,163	2,157	170,381	132,675
1919-20 ..	7,084	2,465	211,307	55,661	58,502	80,400	3,559	4,307	280,452	142,833
1920-21 ..	4,448	2,469	116,887	62,919	39,534	65,307	7,308	5,786	168,177	133,481
Average 10 seasons 1911-21	5,927		183,515	56,337	40,619	54,698	2,163	2,195	295,018	

(a) Average for nine seasons.

6. Imports and Exports.—The following table gives the overseas imports and exports of raisins and currants during each of the past five years :—

COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF RAISINS AND CURRANTS, 1916-17 TO 1920-21.

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
RAISINS.						
	<i>lbs.</i>	<i>£</i>	<i>lbs.</i>	<i>£</i>	<i>lbs.</i>	<i>£</i>
1916-17 ..	45,237	1,907	5,621,551	166,341	5,576,314	164,434
1917-18 ..	164,699	4,791	3,957,863	114,510	3,793,164	109,719
1918-19 ..	28,818	927	3,111,055	95,523	3,082,237	94,596
1919-20 ..	42,169	2,201	8,839,839	359,561	8,797,670	357,360
1920-21 ..	14,997	1,366	11,816,126	520,293	11,801,129	518,927
CURRANTS.						
1916-17 ..	2,416	54	6,525,426	165,006	6,523,010	164,952
1917-18 ..	201	5	4,934,822	134,654	4,934,621	134,649
1918-19 ..	19,909	505	3,470,803	100,326	3,450,894	99,821
1919-20 ..	2,877	120	7,947,811	246,382	7,944,934	246,262
1920-21 ..	3,573	300	5,994,580	208,743	5,991,007	208,443

The quantities of raisins and currants imported into Australia were generally greater than the exports for all years prior to 1912, when the increased production in Australia left a surplus available for export. During the last five years the value of the exports exceeded that of the imports by £2,099,163, the average annual excess for the quinquennium being £419,833.

§ 15. Orchards and Fruit Gardens.

1. *Nature and Extent.*—Fruit-growing has made rapid progress in the Commonwealth during recent years, the area devoted thereto having increased in the past ten years by no less than 92,666 acres. The States in which the increase is most marked are :—Victoria, 30,393 acres; New South Wales, 28,371 acres; Queensland, 11,774 acres; and Tasmania, 10,350 acres. During the same period the South Australian fruit-growing area increased by 8,954 acres, while that in Western Australia exhibited an increase of 2,832 acres. The increased areas in Tasmania and Western Australia are mainly due to extensive plantings of apple trees with a view to the possibilities of the London market for fresh fruit. The total area devoted to orchards and fruit gardens in the several States is given hereunder :—

COMMONWEALTH ORCHARDS AND FRUIT GARDENS, 1916-17 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>
1916-17 ..	60,360	83,087	25,293	28,794	21,752	38,380	..	26	257,692
1917-18 ..	64,116	83,818	26,001	29,020	21,137	38,024	..	18	262,134
1918-19 ..	67,432	85,130	24,250	30,085	20,412	37,424	..	18	264,751
1919-20 ..	72,802	86,336	24,636	30,617	19,815	37,687	..	1	271,894
1920-21 ..	75,904	87,768	26,927	31,364	19,570	37,013	..	5	278,551

The varieties of fruit grown differ materially in various parts of the various States, and range from such fruits as the pineapple, paw-paw, mango, and guava of the tropics, to the strawberry, the raspberry, and the currant of the colder parts of the temperate zone. The principal varieties grown in Victoria are the apple, pear, peach, apricot, and plum. In New South Wales, citrus fruits (orange, lemon, etc.), occupy the leading position, although peaches, bananas, apples, and plums are also extensively grown. In Queensland the banana, the pineapple, the orange, the apple, the peach, and the coconut are the varieties most largely grown. In South Australia, in addition to the apple, orange, apricot, peach, pear, and plum, the almond and the olive are also largely grown. In Western Australia, the apple, orange, peach, pear, plum, fig, and apricot are the sorts chiefly grown, while in Tasmania, although the apple represents over four-fifths of the area in that State devoted to fruit-growing, small fruits, such as the currant, raspberry, and gooseberry, are very extensively grown, and the balance of the area is mainly occupied with the pear, apricot, plum, and cherry. The following table gives the acreage under the principal kinds of fruit grown, and the quantity and value of fruit produced. The acreages shewn are exclusive of young trees not yet bearing. Though annual statistics of area are not collected in Victoria, an effort is made to estimate the acreage under each class of fruit in that State from data based on the triennial collection of the number of trees, subject to annual variations in the total area under orchards and fruit gardens:—

PARTICULARS OF THE PRINCIPAL KINDS OF FRUIT GROWN IN THE SEVERAL STATES OF THE COMMONWEALTH DURING THE SEASON 1920-21.

Fruit.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	F. Ter.	C'wealth.
Apples .. acres	9,190	25,992	2,046	8,857	8,218	25,610	4	79,917
bushels	890,555	1,451,069	96,828	671,250	400,885	2,359,094	790	5,870,471
£	250,910	417,182	54,869	133,056	239,278	655,000	236	1,750,531
Apricots .. acres	1,334	4,355	117	2,469	494	1,463	..	10,232
bushels	118,745	251,996	4,635	190,014	39,398	86,039	..	690,827
£	45,600	100,798	4,442	74,645	26,265	26,887	..	278,637
Bananas .. acres	3,917	..	8,981	..	10	..	..	12,908
bushels	502,992	..	898,591	..	1,764	..	..	1,403,347
£	298,780	..	349,452	..	1,764	..	..	649,996
Lemons .. acres	2,697	1,168	354	427	272	..	..	4,918
bushels	279,023	87,867	19,963	46,678	31,041	..	..	464,572
£	65,610	39,540	20,379	13,420	21,405	..	..	160,354
Nectarines } acres	8,927	10,275	2,253	2,519	1,106	75	..	25,155
and } bshls.	789,833	745,703	95,244	193,451	92,425	5,142	46	1,921,844
Peaches } .. acres	269,110	244,952	61,697	67,797	58,029	1,286	20	702,891
Oranges } .. acres	19,161	3,564	2,943	3,087	2,126	..	..	30,881
bushels	1,716,566	169,335	209,324	320,696	166,946	..	..	2,582,867
£	599,460	84,663	142,166	112,244	107,104	..	..	1,045,642
Pineapples acres	25	..	3,909	..	..	..	..	3,934
dozen	5,367	..	826,666	..	..	..	..	832,033
£	2,060	..	289,333	..	..	..	..	291,393
Pears .. acres	2,775	8,578	308	1,685	1,044	1,567	..	15,957
bushels	234,669	759,148	8,564	169,274	98,170	180,392	2	1,450,219
£	66,500	145,503	11,205	35,115	38,245	60,000	1	356,569
Plums .. acres	2,464	4,511	852	1,665	705	503	1	10,701
bushels	211,235	297,055	23,439	131,785	63,039	47,247	36	773,836
£	69,030	53,222	20,704	31,209	28,565	4,725	12	207,467
Other fruits acres	2,756	8,248	2,562	3,441	804	2,124	..	19,935
£	108,660	168,331	98,513	83,064	31,134	74,268	11	563,981
Total .. acres	53,246	66,691	24,325	24,150	14,779	31,342	5	214,538
£	1,775,720	1,254,196	1,052,760	550,550	551,783	822,166	280	6,007,461

2. Relation to Population.—The acreage of orchards and fruit gardens of the Commonwealth in relation to population has shewn a slight tendency to decrease during the past five years. The Commonwealth figure for 1920-21 amounted to .05 acres per

head, whilst the range amongst the States extended from .036 in New South Wales to .174 acres in Tasmania. Details for orchards and fruit gardens for the years 1916-17 to 1920-21 are as follows :—

**AREA OF ORCHARDS AND FRUIT GARDENS PER 1,000 OF POPULATION,
1916-17 TO 1920-21.**

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1916-17..	32	59	37	65	71	196	..	12	52
1917-18..	33	59	38	65	69	192	..	9	53
1918-19..	34	59	34	66	66	184	..	8	52
1919-20..	36	57	33	64	61	180	..	0.5	51
1920-21..	36	57	36	64	59	174	..	3	51

3. **Commonwealth Imports and Exports.**—A considerable fruit trade, both import and export, is carried on by the Commonwealth with oversea countries, the major portion of the importations consisting of fresh fruits and dates, while apples and dried fruits, principally raisins and currants, bulk largely in the exports. The principal fresh fruits imported during the past five years were apples and bananas, the apples coming from the United States, while the bananas were supplied by Fiji. The dates were imported from Mesopotamia and Asia Minor. The exports of apples were mainly consigned to the United Kingdom. Many varieties of dried fruits have been imported into the Commonwealth since 1916-17, but the bulk of those exported consisted of currants and raisins, which were shipped mainly to the United Kingdom, New Zealand, Canada, and the United States.

Particulars concerning the oversea imports and exports of dried fruits for the last five years are as follows :—

**COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF DRIED FRUITS, (a)
1916-17 TO 1920-21.**

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1916-17 ..	6,058,769	89,006	13,460,274	372,712	7,401,505	283,706
1917-18 ..	1,587,451	42,856	9,427,669	266,297	7,840,218	223,441
1918-19 ..	1,806,333	53,594	8,524,587	253,040	6,718,254	199,446
1919-20 ..	9,444,713	234,811	18,034,391	643,670	8,589,678	408,859
1920-21 ..	7,362,341	168,076	19,598,672	806,134	12,236,331	638,058

(a) Including raisins and currants referred to under Vineyards, § 14, 6.

Similar information with regard to the Commonwealth oversea trade in fresh fruits for the same period is contained in the table given hereunder :—

**COMMONWEALTH OVERSEA IMPORTS AND EXPORTS OF FRESH FRUITS,
1916-17 TO 1920-21.**

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1916-17 ..	46,304,700	299,360	16,294,800	141,583	-30,009,900	-157,777
1917-18 ..	25,635,100	160,899	4,648,900	46,481	-20,986,200	-114,418
1918-19 ..	13,656,500	90,034	20,809,100	188,381	7,152,600	98,347
1919-20 ..	8,330,500	95,560	42,722,200	466,910	34,391,700	371,350
1920-21 ..	11,555,200	130,471	51,686,200	535,525	40,131,000	405,054

NOTE.—The minus sign (—) signifies net imports.

4. **Jams and Jellies.**—A considerable oversea trade in jams and jellies is now carried on by the Commonwealth, the value of the imports for the year 1920-21 amounting to £14,543, and of the exports to £550,403. The destinations of the exports were principally the United Kingdom, Egypt, United States of America, France, South African Union, and India. Particulars relative to imports and exports during each of the last five years are as follows:—

**COMMONWEALTH OVERSEA TRADE IN JAMS AND JELLIES,
1916-17 TO 1920-21.**

Year.	Oversea Imports.		Oversea Exports.		Net Exports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£	lbs.	£
1916-17 ..	152,260	6,210	45,074,352	949,112	44,922,092	942,902
1917-18 ..	16,658	521	64,891,116	1,410,548	64,874,458	1,410,027
1918-19 ..	78,329	2,294	79,277,560	1,847,970	79,199,231	1,845,676
1919-20 ..	179,480	9,913	44,793,409	1,218,997	44,613,929	1,209,084
1920-21 ..	379,401	14,543	16,535,335	550,403	16,155,934	535,860

5. **Preserved Fruit.**—Details concerning the quantities and values of preserved fruit imported into and exported from the Commonwealth cannot readily be obtained, owing to the fact that in the Customs returns particulars concerning fruit and vegetables are in certain cases combined. The total value of fruit and vegetables, other than fresh fruits, dried fruits, potatoes, and onions, imported into Australia during 1920-21 was £57,808 and the corresponding value of exports was £266,728.

§ 16. Minor Crops.

1. **Nature and Extent.**—In addition to the leading crops which in the foregoing pages have been dealt with in some detail, there are many others which, owing either to their nature, or to the fact that their cultivation has advanced but little beyond the experimental stage, do not occupy so prominent a position. Some of the more important of these are included under the headings—Market Gardens, Pumpkins and Melons, Nurseries, Grass Seed, Tobacco, Flax, Hops, and Millet. Cotton-growing has recently received considerable attention in the tropical portions of the Commonwealth, although the industry from the 1920-21 results cannot yet be said to be beyond the experimental stage. The total area in the Commonwealth during the season 1920-21 devoted to crops not dealt with in previous sections was 72,998 acres, of which market gardens accounted for 23,260 acres, or nearly 39 per cent.

2. **Market Gardens.**—Under this head are included all areas on which mixed vegetables are grown. Where considerable areas are devoted to the production of one vegetable, such for instance as the potato, the onion, the melon, the tomato, etc., the

figures are usually not included with market gardens, but are shewn either under some specific head, or under some general head as "Other Root Crops," or "All Other Crops." The area under market gardens in the several States of the Commonwealth during each of the last five seasons is given in the table hereunder :—

COMMONWEALTH MARKET GARDENS, 1916-17 TO 1920-21.

Season.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	F. Ter.	C'wealth.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1916-17 ..	10,683	10,746	2,305	1,522	2,153	448	..	27	27,884
1917-18 ..	10,100	11,362	1,991	1,502	2,334	447	..	39	27,775
1918-19 ..	10,004	11,594	1,814	1,405	2,237	389	..	39	27,482
1919-20 ..	9,833	12,633	1,752	1,343	2,410	367	..	39	28,377
1920 21 ..	9,888	12,201	2,018	1,471	2,269	386	..	27	28,260

3. Grass Seed.—The total area under this crop during 1920-21, exclusive of New South Wales, for which State no figures as to area are available, was 17,980 acres, of which 2,042 acres were in Victoria, 14,748 acres in Queensland, and 1,179 acres in Tasmania. The total yield for 1920 21, including New South Wales, was 204,059 bushels, valued at £115,062.

4. Tobacco.—Tobacco-growing is an industry which has experienced marked fluctuations, although at one time it promised to occupy an important place amongst the agricultural industries of the Commonwealth. Thus, as early as the season 1888-9 the area under this crop amounted to as much as 6,641 acres, of which 4,833 were in New South Wales, 1,685 in Victoria, and 123 in Queensland. This promise of importance was, however, not fulfilled, and after numerous fluctuations, in the course of which the Victorian area rose in 1895 to over 2,000 acres, and that in Queensland to over 1,000 acres, the total area for the season 1920-21 had declined to 1,345 acres, distributed as follows :—New South Wales, 1,021 acres; Victoria, 95 acres; and Queensland, 228 acres. The decline in area during 1920-21 amounting to 986 acres was brought about by the prevalence of blue mould in the seed beds, as the result of which growers found it impossible to raise enough plants to set out in the field. This disease is the main check to the industry, for it generally makes its appearance during a wet spring, and as yet no means has been found to combat it. In all the States in which its cultivation has been tried, the soil and climate appear to be very suitable for the growth of the plant, and the enormous importations of tobacco in its various forms into the Commonwealth furnish an indication of the extensive local market which exists for an article grown and prepared in such a manner as to meet the requirements of consumers. The value of the net importations of tobacco into the Commonwealth during the year 1920-21 amounted to £3,354,885, comprising unmanufactured tobacco £3,430,726, cigars £132,395, cigarettes £73,941, and snuff £1,340, while manufactured tobacco shewed a balance in favour of exports amounting to £283,517.

5. Pumpkins and Melons.—The total area under this crop in the Commonwealth during 1920-21 was 9,703 acres, of which 2,815 acres were in New South Wales, 1,061 acres in Victoria, 4,938 acres in Queensland, 449 acres in Western Australia, 340 acres in South Australia, and 100 acres in the Northern Territory. The production for the Commonwealth amounted to 32,802 tons.

6. Hops.—Hop-growing in the Commonwealth is practically confined to Tasmania and some of the cooler districts of Victoria, the total area for the season 1920-21 being 1,497 acres, of which 1,401 acres were in Tasmania, and 93 acres in Victoria. The Tasmanian area, though still small, has increased considerably during the past nineteen years, the total for the season 1901-2 being only 599 acres. On the other hand the Victorian area, which in 1901-2 was 307 acres, had diminished to 93 acres in 1920-21. The cultivation of hops was much more extensive in Victoria some forty years ago than at present, the area devoted to this crop in 1883-4 being no less than 1,758 acres. During the year 1920-21 the imports of hops exceeded the exports by 1,244,390 lbs., the excess value being £235,437.

7. Flax.—For the past twenty years flax has been grown intermittently in the Gippsland district of Victoria, and attempts have also been made to introduce its cultivation into Tasmania and New South Wales, but without success. In 1907, the Commonwealth

Government, with a view to foster the industry, provided for the payment of a bounty of 10 per cent. of the market value of all flax products, but the low returns for fibre, about £45 per ton, prevented the extension of flax growing to any appreciable degree and on 1st July, 1917, the bounty provisions expired. At the end of that year, however, the shortage of flax fibre in Europe had become very acute owing to the occupation of the Baltic Provinces by Germany and at the suggestion of the Advisory Council of Science and Industry, and with the object of assisting the Imperial Government, the Commonwealth Government formulated a scheme to encourage the cultivation of flax. A Flax Industry Committee, consisting of representatives of the Department of Agriculture in Victoria, the flax growers, and the cordage manufacturers, was appointed with executive powers under War Precautions Regulations. At the same time, a guarantee was given by the Commonwealth Government of £5 per ton for flax of specified standard grown in 1918. Further guarantees of £6 for 1919, 1920 and 1921, and £5 for 1922 were later given by the Commonwealth Government. The whole of the commercial flax crop is grown in Victoria, but a grant of £1,000 has been provided by the Commonwealth for experimental work, and in most of the States experiments are being carried out to determine the suitability of the soil and climate for the cultivation of this crop. Particulars of the crop in Victoria for the past five years are as follows :—

FLAX, 1916-17 TO 1920-21.

Year.	Area.	Seed Produced.	Fibre Produced.	Tow Produced.	Value of Crop.	Straw awaiting Treatment.
	Acres.	cwt.	cwt.	cwt.	£	tons.
1916-17 ..	443	1,481	1,371	..	(a)	..
1917-18 ..	419	1,337	925	..	(a)	..
1918-19 ..	1,420	5,200	3,800	2,000	24,400	..
1919-20 ..	1,611	4,970	1,053	394	16,708	1,653
1920-21 ..	993	3,658	938	99	(a)	662

(a) Not available.

Australia imports annually flax products to the value of £1,800,000, and as it has been demonstrated that flax can be grown to perfection in many parts of the Commonwealth, it would appear that there is a good prospect of successfully establishing a local industry.

8. **Millet.**—Millet appears in the statistical records of three of the Commonwealth Divisions. The total area devoted thereto in 1920-21 was 3,254 acres, of which 1,453 acres were in New South Wales, 1,429 in Victoria, and 372 in Queensland. The particulars here given relate to millet grown for grain and fibre. That grown for green forage is dealt with in the section relating thereto.

9. **Nurseries.**—In all the States somewhat extensive areas are devoted to nurseries for raising plants, trees, etc. Statistics concerning the area so occupied for flowers, fruit trees, etc., are available for New South Wales, Victoria, South Australia, and Western Australia. During 1920-21 the areas in those States were 638, 893, 206, and 111 acres respectively. Statistics so far as they relate to forestry are given elsewhere.

10. **Cotton.**—The cultivation of cotton commenced in Queensland in 1860, and ten years later the area cropped had increased from fourteen to upwards of fourteen thousand acres. The origin of cultivation and this increase were brought about by two contributory causes—a bonus on cotton, and an extraordinary demand due to the American Civil War. The re-appearance of American cotton in the European market on the conclusion of the Civil War, and the difficulty in those days of communication with Europe were the principal factors in a decline in the area cultivated which continued till 1888, when only 37 acres were planted. The industry was resuscitated soon after and manufacturing undertaken on two separate occasions at Ipswich, but operations were not at any time very extensive. Low prices over a term of years acted as a check to development. Added interest was shewn in the crop in 1903, and in 1913 the Queensland Government made an advance of 1½d. per lb. on seed cotton and ginned it on owner's account, the final return being equal to about 1½d. per lb. The system of making

advances to growers has since been continued, and for the three years ended 31st July, 1923, the advance was raised to 5½d. The Commonwealth Government decided to guarantee the 1922-23 season's crop on a basis of pound for pound with the State Government. Further guarantees for a period of three years from 1st August, 1923, till 31st July, 1926, have also been granted by the Queensland Government, the price for 1923-24 to be on a sliding scale basis in accordance with the grade of cotton, with the maximum price of 5½d. per lb. for seed cotton of good quality, free from disease, and 1¼-in. staple. The seed must be secured from the Department of Agriculture. Details for the two remaining years will be announced when the expert is appointed.

Extraordinary interest has recently been manifested in this crop, which has proved most remunerative; in fact, many farmers now engaged in cotton-growing had not hitherto been so prosperous. The active participation by the Australian Cotton Growing Association which has established modern ginning plants at Rockhampton and Brisbane (Whinstanes) has also contributed to the flourishing condition of the industry. An assured price of this character, even should it be regulated at a later date, according to a sliding scale consistent with varying qualities of cotton, is calculated to do much towards the extension of what promises to be a very important industry.

Efforts are being directed by the Department of Agriculture towards the introduction into cultivation of improved long staple upland varieties, with a view to the production of cotton which will return a good aggregate yield and command also the highest possible price obtainable. A sub-tropical climate, copious rains in the spring and early summer, followed by a dry autumn are favourable conditions for the development of the cotton plant. Particulars of the cotton crop in Queensland during the last five years are as follows :—

QUEENSLAND COTTON CROP, 1918 TO 1922.

Year.						Area.	Yield of Unginned Cotton.
						Acres.	lbs.
1918	..	..	..	..	..	203	101,445
1919	..	..	..	..	..	72	27,470
1920	..	..	..	..	..	166	57,065
1921	..	..	..	..	..	1,944 (a)	940,126
1922	..	..	..	..	..	7,000	3,250,000

(a) 858 acres not bearing.

The above table furnishes evidence of a rapid expansion during the past two years, and if present estimates prove reliable a more remarkable development will take place in the coming season, when it is expected that about 85,000 acres will be planted with cotton in Australia.

11. **Coffee.**—Queensland is the only State of the Commonwealth in which coffee-growing has been at all extensively tried, and here the results have up to the present time been far from satisfactory. The total area devoted to this crop reached its highest point in the season 1901-2, when an area of 547 acres was recorded. The area then continuously declined to 1906-7, when it was as low as 256 acres. In subsequent seasons the area fluctuated somewhat, but on the whole with a downward tendency, and in 1920-21 only 18 productive acres were recorded, with a yield of 12,120 lbs.

12. **Other Crops.**—Miscellaneous small crops are grown in the several States, amongst which may be mentioned tomatoes, rhubarb, artichokes, arrowroot, chicory, and flowers.

§ 17. Bounties on Agricultural Products.

1. **General.**—The Bounties Acts of 1907 and 1912, passed by the Federal Parliament in order to encourage the manufacture and production of certain articles in the Commonwealth, included among the items on which bonuses were payable the following agricultural products :—Cotton, fibres, rice, coffee, tobacco and dried fruits, except currants and raisins. The rates and dates of expiry of the bounties were shewn in previous issues of the Year Book, the only one in force at present being that relating to dates. Though the bonus s were fairly liberal they were not availed of to any great extent.

§ 18. Fertilizers.

1. **General.**—In the early days of settlement and cultivation in the Commonwealth, scientific cultivation was in a comparatively undeveloped state. The early farmers were neither under the necessity, nor in fact aware of the necessity, of supplying the constituents to the soil demanded by each class of crop. The widely divergent character of the soils in the Commonwealth, their degeneration by repeated cropping, the limitations of climatic conditions, the difficulties of following any desired order of rotation of crops, all rendered it essential to give attention to artificial manuring. The introduction of the modern seed-drill, acting also as a fertilizer distributor, has greatly facilitated the use of artificial manures, and much land formerly regarded as useless for cultivation has now been made productive. There is reason to believe that this feature will be even more strikingly characteristic of the future.

2. **Fertilizers Acts.**—In order to protect the interests of users of artificial manures legislation has been passed in each of the States, regulating the sale and preventing the adulteration of fertilizers. A list of these Acts and their main features will be found in Year Book No. 12 (page 378).

3. **Imports.**—The local production of artificial manures has assumed large proportions during the last few years, though considerable quantities are still imported. The importation of fertilizers has increased over 100 per cent. since 1901. The chief items, as regards both quantity and value, are those relating to phosphates, a fertilizer which has proved itself to be very suitable for the growing of cereals in Australian soils. During 1920–21 the values of rock phosphates imported represented over 77 per cent. of the total importation of fertilizers. Gilbert and Ellice Islands Colony with 40 per cent., was the largest contributor, Nauru coming next with 31 per cent., while the bulk of the remainder was supplied by Christmas Island. Practically all of the soda nitrate came from Chile.

The imports of artificial manures during the last five years are given in the following table. No importations of manufactured superphosphates were made during the last four years, though considerable quantities were annually imported up till 1914–15.

COMMONWEALTH IMPORTS OF FERTILIZERS, 1916–17 TO 1920–21.

Fertilizer.			1916–17.	1917–18.	1918–19.	1919–20.	1920–21.
Bonedust	..	cwt.	40	..	2,004	1,508	1,260
"	..	£	18	..	785	1,420	652
Guano	..	cwt.	264,581	..	137,038	535,688	1,129,240
"	..	£	30,772	..	17,304	61,021	124,193
Superphosphates	..	cwt.	200	..	..	..	..
"	..	£	61	..	..	..	..
Rock phosphates	..	cwt.	3,556,561	3,643,038	2,811,812	2,585,163	4,756,140
"	..	£	444,984	433,940	334,036	330,544	721,608
Soda nitrate	..	cwt.	165,472	53,800	38,483	130,914	90,660
"	..	£	107,977	43,264	30,767	84,398	84,532
Other	..	cwt.	1,202	397	520	61,454	169
"	..	£	1,494	909	488	75,116	1,792
Total	..	{ cwt.	3,988,056	3,697,235	2,989,827	3,314,727	5,986,460
		£	585,306	478,113	383,380	552,499	982,777

4. Exports.—The subjoined table shews the exports of artificial manures for the years 1916-17 to 1920-21. Practically the whole of these fertilizers are manufactured locally, and are shipped mainly to New Zealand, Japan, Java, and the Pacific Islands :—

COMMONWEALTH EXPORTS OF FERTILIZERS, 1916-17 TO 1920-21.

Fertilizer.			1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Bonedust	cwt.		37,337	17,252	34,722	131,710	59,680
"	£		12,832	7,221	18,516	74,036	40,926
Guano	cwt.		4,455	840	8,669	601	..
"	£		1,061	234	2,775	181	..
Superphosphates	cwt.		483,552	699,784	345,493	264,174	472,860
"	£		105,492	179,691	95,623	67,288	153,060
Rock "phosphates	cwt.		66,010	70,004	44,032	72,462	186,260
"	£		8,464	9,810	6,773	11,775	25,763
Soda nitrate	cwt.		7,339	18,888	60	28,223	2,720
"	£		5,678	16,741	84	28,673	3,640
Ammonia sulphate	cwt.		109,248	118,147	196,954	167,420	123,720
"	£		111,794	211,322	350,098	226,289	160,017
Other	cwt.		72,572	30,037	21,186	158,661	41,320
"	£		20,925	14,532	11,008	108,926	25,190
Total			780,513	954,952	651,416	823,251	886,560
			266,246	439,551	484,877	517,168	408,596

5. Statistics of Use of Fertilizers.—Statistics of the use of manures in the Commonwealth during the past five years are available for all the States. Particulars concerning New South Wales are given hereunder :—

FERTILIZERS USED IN NEW SOUTH WALES, 1916-17 TO 1920-21.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1916-17	5,164,434	2,352,180	45.55	166,374	50,704
1917-18	4,461,172	1,974,620	44.26	181,052	44,883
1918-19	3,891,823	1,780,254	45.74	180,734	42,804
1919-20	3,771,468	1,708,762	45.28	172,878	43,592
1920-21	4,465,143	1,998,429	44.76	160,361	49,910

Particulars for Victoria for the past five seasons are as follows :—

FERTILIZERS USED IN VICTORIA, 1916-17 TO 1920-21.

Season.	Total Area of Crops.	Farmers Using Manure.	Area Manured.		Manure Used.	
			Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	No.	Acres.	%	Tons.	Tons.
1916-17 ..	4,851,335	33,165	3,870,742	79.79	181,268	117,812
1917-18 ..	4,110,225	30,109	3,336,418	81.17	167,114	106,119
1918-19 ..	3,942,899	32,589	3,222,822	81.74	162,165	104,993
1919-20 ..	4,000,815	32,114	3,249,768	81.23	164,491	115,627
1920-21 ..	4,489,503	36,073	3,576,940	79.67	156,978	135,205

The following table gives particulars of the use of manures in Queensland since 1916-17 :—

FERTILIZERS USED IN QUEENSLAND, 1916-17 TO 1920-21.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops.	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1916-17	885,259	22,145	2.50	34,811	6,869
1917-18	727,958	17,862	2.45	42,779	4,833
1918-19	525,517	18,932	3.60	45,328	6,679
1919-20	563,762	20,139	3.57	46,097	6,428
1920-21	779,497	24,424	3.13	47,008	7,494

The figures relating to the use of fertilizers in South Australia are shewn in the table below :—

FERTILIZERS USED IN SOUTH AUSTRALIA, 1916-17 TO 1920-21.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1916-17	3,627,477	2,872,571	79.19	101,032	96,893
1917-18	3,079,778	2,553,713	82.92	87,550	90,795
1918-19	3,111,079	2,587,648	83.19	92,063	90,302
1919-20	3,058,770	2,583,914	84.48	102,488	93,091
1920-21	3 231,083	2,794,530	86.49	112,554	101,474

Corresponding particulars relative to Western Australia for the seasons 1916-17 to 1920-21 are given in the following table :—

FERTILIZERS USED IN WESTERN AUSTRALIA, 1916-17 TO 1920-21.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Loads.	Tons.
1916-17	2,004,944	1,903,026	94.92	49,216	70,326
1917-18	1,679,772	1,586,748	94.46	49,578	58,989
1918-19	1,605,088	1,547,144	96.39	49,900	57,276
1919-20	1,628,163	1,561,957	95.93	54,487	58,153
1920-21	1,804,987	1,710,366	94.76	60,953	66,602

Statistics relating to the use of manures in Tasmania for the past five seasons are as follows :—

FERTILIZERS USED IN TASMANIA, 1916-17 TO 1920-21.

Season.	Total Area of Crops.	Area Manured.		Manure Used.	
		Aggregate.	Percentage on Total Area of Crops	Natural (Stable-yard, etc.).	Artificial.
	Acres.	Acres.	%	Tons.	Tons.
1916-17	270,526	144,532	53.43	30,990	13,886
1917-18	238,199	120,476	50.58	28,006	11,472
1918-19	254,109	135,558	53.35	25,032	11,367
1919-20	270,955	153,606	56.69	21,604	12,588
1920-21	297,383	185 884	62.51	18,510	14,912

6. **Local Production of Fertilizers.**—Statistics relative to the local production of fertilizers are incomplete, and detailed returns for fertilizer factories other than bone mills are not available. The number of firms engaged in the manufacture of artificial manures in the Commonwealth at latest available date was 94, made up as follows:—New South Wales, 21; Victoria, 29; Queensland, 22; South Australia, 10; Western Australia, 4; and Tasmania, 8.

7. **Benefits Derived from the Use of Fertilizers.**—There is little doubt that the increasing use throughout the Commonwealth of fertilizers, natural and artificial, combined with the greater attention being devoted to fallowing and to the combination of sheep-farming with agriculture, is having the effect of improving the prospects of those dependent for a livelihood on the products of the soil. Reference has previously been made to the loss to the soil of phosphoric acid which the Commonwealth export of wheat and its milled products involves, and the necessity which thus arises for returning this ingredient in some form. Similarly, other staple products exported impose their respective tolls upon the soil, and the increased use of fertilizers furnishes evidence that producers are alive to the necessity for making good the deficiency so arising.

§ 19. Ensilage.

1. **Value to Stockowners.**—The use of ensilage as a substitute for green fodder during periods of drought or spells of dry weather, or for winter use, is less extensive in Australia than the circumstances would appear to warrant. There is, however, a growing disposition on the part of dairy farmers to make silos on their holdings, as they find that dairy cattle eat ensilage greedily, and that by its means the output of milk, both in regard to quantity and quality, may be kept up long after the supply of ordinary green food is exhausted. Sheepbreeders are also recognising the fact that during protracted periods of dry weather the silo enables them to keep their stock in good condition, and that lambing can take place satisfactorily. Ensilage thus obviates the expense of travelling or trucking sheep for hundreds of miles to get beyond the drought area, or the equally costly and even ruinous alternative of providing chaff for food at high prices and costly freight. In the rearing of lambs for the London market, ensilage appears to be destined to play an important part, as the lambs thrive upon it much better than upon dry food. By the judicious economising of the surplus growth of green food with the use of the silo, farmers and squatters can carry more stock on their holdings than they otherwise would be justified in doing. Not only is the great waste of superabundant food thus avoided, but it becomes possible to change into a succulent and nutritious food much growth that in any other state would not be eaten by stock. Thus such vegetation as marsh mallows, thistles, weeds of all sorts, and even the swamp reed (*Arundo phragmites*), which grows in great quantities in lagoons, billabongs, and swamps, are all eaten with avidity when offered to stock in the form of ensilage. The pit and stack silos are rapidly being superseded by those built of red gum and hardwood or concrete. This is found to a great extent to obviate the loss sustained by mould, at the same time reducing the risk of fire. A portable silo made of iron has been devised in sections of such size and weight as to admit of ready handling. These silos can be increased in diameter or height by the addition of further sections.

2. **Government Assistance in the Production of Ensilage.**—The Government of Victoria, recognising that defective methods of making ensilage have often been adopted, has for some years been making special efforts to educate the farming community, by the issue of bulletins, lectures, etc., so that mistakes may be avoided, and the conditions essential for the production of good ensilage may be better appreciated. These conditions vary with the climate and with the locality. The Government also undertakes the erection of different types of silos on very liberal terms, repayment extending over a series of years. Experts erect the silos and give practical lessons as to packing them, etc. The New South Wales Government has, by giving advice in the "Agricultural Gazette," and by the issue of special bulletins, taken steps towards the education of the farmers. Silos also have been erected on the various experimental farms with a view to demonstrating the value of ensilage. No financial assistance is, however, given in New South Wales in this connexion.

3. Quantity Made.—Particulars concerning the number of silos and the quantity of ensilage made in the several States of the Commonwealth in the seasons 1916-17 to 1920-21 are furnished in the following table :—

ENSILAGE MADE IN COMMONWEALTH, 1916-17 TO 1920-21.

State or Territory.	1916-17.		1917-18.		1918-19.		1919-20.		1920-21.	
	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.	Holdings.	Ensilage Made.
	(a)		(a)		(a)		(a)		(a)	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
New South Wales ..	119	16,336	116	14,789	60	6,292	112	13,323	118	15,633
Victoria ..	179	10,974	117	9,852	95	8,249	74	6,072	99	9,702
Queensland ..	70	5,115	60	4,556	45	3,541	72	4,313	164	7,600
South Australia ..	20	1,795	13	921	16	1,083	15	1,435	25	1,616
Western Australia ..	12	278	11	325	11	441	5	211	12	390
Tasmania ..	7	114	38	518	7	180	7	275	11	490
Federal Territory ..	..	..	..	..	..	..	..	..	..	..
Northern Territory ..	..	..	..	..	..	..	..	..	..	..
Commonwealth ..	408	34,667	356	31,011	235	19,836	285	25,639	429	35,431

(a) No. of holdings on which ensilage was made.

Following the drought of 1902-3 greater attention was paid to ensilage than was previously the case, and during the four seasons ended 1909-10 a continuous and fairly rapid increase was in evidence in all the States, both in the number of holdings on which ensilage was made and in the quantity produced. The following five seasons, however, shewed a falling-off, but the reduction cannot be accepted as an indication of a lessening of appreciation of the benefits of ensilage, but rather of the fact that stocks had not been drawn upon to any great extent during the previous seasons. The accumulated stocks proved of very great value during the 1914 drought, though far below what would have been the case if more attention had been paid to ensilage-making during the previous years of surplus green food. A very substantial increase took place in 1915-16, both in the holdings on which ensilage was made and in the quantity produced, but during the next four years the production declined perceptibly, particularly in Victoria. The figures for 1920-21, however, reveal a satisfactory increase in all the States.

§ 20. Agricultural Colleges and Experimental Farms.

1. Introduction.—In most of the States, agricultural colleges and experimental farms have been established with a view to promoting agriculture and to establishing improved and more scientific systems of stock-breeding and dairying. In these colleges, and on some of the farms, provision is made for the accommodation of pupils, to whom both practical and theoretical instruction is given by experts in various branches of agriculture. Analyses of soils and fertilizers are made, manures are tested, and elementary veterinary science, etc., is taught, while general experimental work is carried on with cereal and other crops, not merely for the purpose of shewing that it is practicable to produce certain crops in a given place, but also to shew how it is possible to make farming pay best in that locality. Opportunities are afforded for practice in general agricultural work, and instruction is given in the conservation of fodder; in cheese and butter making; in the management, breeding, and preparation for the market of live stock; in the eradication of pests and weeds; and in carpenters', blacksmiths', and other trades.

Travelling expert lecturers are sent to the various agricultural and dairying centres, and there is a wide distribution of periodical agricultural gazettes and bulletins on matters of importance at special seasons.

2. Particulars of Agricultural Colleges and Experimental Farms.—In previous issues detailed information is given in respect of agricultural colleges, experimental farms and agricultural education generally. See Year Book No. 11, pp. 393-5.

§ 21. Government Loans to Farmers.

1. **Introduction.**—All the Australian States have established systems under which financial aid is rendered to agriculturists by the Government. The principle upon which such aid is founded was probably first practically applied in Germany, in the year 1770, when the *Landschaften Bank* was created. The establishment of the *Crédit Foncier* nearly a century later in France was a creation of a similar character. This latter institution was designed to enable house and land owners to raise money on mortgage at a low rate of interest, with facility for repayment by annual instalments including redemption of the capital. It dates from 1852, but the mortgage bank known as the *Caisse Hypothécaire*, which, after a struggling existence, was finally liquidated in 1864, was based essentially on the same principle. Over the operations of the *Crédit Foncier*, created under governmental patronage and invested with such special privileges as to virtually constitute it a monopoly, the Government exercised a direct control, by appointing its governor and its two deputy-governors. The *Crédit Foncier* was empowered to lend money only on a first mortgage, and to the amount of one-half of the estimated value of houses and farms, and one-third that of vineyards, woods, and other plantations, and the commission charged could not exceed six-tenths per cent. The system developed and adopted in the Commonwealth, with the object of assisting farmers to make improvements or to develop or utilise the agricultural or pastoral resources of the land, is analogous. Particulars of advances made under the Closer Settlement and similar Acts are dealt with in the section on Closer Settlement.

2. **Aggregate of Transactions in each State, 1918 to 1921.**—The subjoined table gives the aggregate of transactions in reference to advances to farmers in each State during the past four years:—

STATE GOVERNMENT ADVANCES DEPARTMENTS—AGGREGATE OF LOANS TO FARMERS, 1918 TO 1921. (a)

State.	Total Advanced to 30th June—				Balance Due at 30th June—			
	1918.	1919.	1920.	1921.	1918.	1919.	1920.	1921.
	£	£	£	£	£	£	£	£
N.S.W. ..	4,514,157	4,774,412	5,416,582	6,250,107	2,544,054	2,599,751	2,903,885	3,423,871
Victoria ..	4,204,542	4,337,542	4,545,452	4,945,337	1,957,694	1,949,023	1,921,735	2,184,058
Q'land... ..	2,026,823	2,245,474	2,572,401	(f)	1,525,649	1,633,936	1,775,000	(f)
S. Aust.(b) ..	2,956,859	3,140,711	3,180,340	3,453,673	1,223,897	1,284,795	1,137,749	1,246,238
W. Aust. ..	3,700,488	3,798,146	3,916,432	(f)	2,789,388	2,835,631	2,784,680	(f)
Tasmania ..	124,319	129,018	133,853	140,907	105,965	107,437	93,591	89,180
Commonwealth	17,527,188	18,425,303	19,765,060	(f)	10,146,647	10,410,573	10,616,640	(f)
	Profits for Year ended 30th June—				Accumulated Profits at 30th June—			
	£	£	£	£	£	£	£	£
N.S.W. ..	17,446	15,276	3,985	6,439	120,085	135,107	139,092	133,066
Victoria(c) ..	14,284	16,615	22,101	17,532	156,348	172,904	195,065	212,587
Q'land... ..	(d)	(d)	(d)	(d)	(e)29,328	(e)29,328	(e)29,323	(e)29,323
S. Aust.(b) ..	11,454	11,128	8,866	13,842	113,923	125,052	133,918	147,760
W. Aust. ..	2,371	7,142	(f)	(f)	83,239	95,381	(f)	(f)
Tasmania ..	1,224	1,096	846	832	5,249	6,346	7,192	8,024
Commonwealth	46,779	51,257	(g)35,798	(f)	(e)513,172	(e)564,118	(g)504,595	(f)

(a) Compiled from figures furnished by the Government Savings Bank of Victoria. (b) Includes loans to farmers and other producers and to local bodies on the security of their own rates. (c) Including profits in connexion with house and similar loans. (d) Not shewn since amalgamation with Government Savings Bank. (e) Total profit to 30th June, 1916. (f) Not available. (g) Exclusive of Western Australia.

3. **Legislation in each State.**—An account of the initial legislation in each State in reference to advances to settlers; subsequent legislation; security on which, and objects for which advances were made; amount of advances and repayments up to the end of 1917-18, etc., will be found in previous issues of the Year Book (see No. 12, pages 384 to 389).

4. **Particulars Respecting Agricultural and Stock Departments.**—A synopsis of the activities and operations of the Agricultural and Stock Departments of the several States of the Commonwealth as on 30th June, 1920, will be found in previous issues of the Year Book (see No. 14, pages 1180 to 1191). The main features of organisation are set out under their respective headings, and will be found to embrace such items as the number on staffs, expenditure, facilities for agricultural education and work undertaken in agricultural colleges, technical schools, experimental farms, and orchards and vineyards. The nature of lectures and other forms of agricultural instruction by experts is dealt with, as well as the extent of distribution of plants, and the special steps taken by the departments to disseminate information amongst agriculturists, and also to facilitate placing the products of the State on the market.

§ 22. Graphical Representation of Crops.

1. **Areas of Principal Crops.**—A graphical representation of the areas devoted to each of the principal crops in the Commonwealth since 1860 will be found on page 275. The crops so represented are as follows :—Wheat, hay, oats, maize, sugar-cane, barley, and vines.

2. **Production.**—On page 276 will be found a graphical representation of the aggregate yields in the Commonwealth since 1860 of wheat, oats, barley, maize, and hay.

SECTION IX.

FARMYARD AND DAIRY PRODUCTION.

§ 1. Introductory.

1. **General.**—The introduction of cattle into Australia, and the early history of the dairying industry are referred to in some detail in earlier issues of this work (see Official Year Book No. 6, p. 430). It may here be noted that the original stock has been crossed with specially imported stud cattle, while further judicious crossing of strains has resulted in an increased and improved milk supply. In Australia, dairy cattle thrive in the open throughout the year, local climatic conditions demanding no protection other than tree plantations for shelter, and rugging in the coldest weather. Indigenous and imported grasses furnish food during the greater part of the year, and winter fodder, when necessary, is given to the cattle in the fields. With the adoption of scientific methods in the treatment of animals and pasturage and in the processes of manufacture, coupled with effective State supervision, the dairying industry has shewn rapid expansion.

2. **Official Supervision of Industry.**—Dairy experts, under the supervision of the various State Agricultural Departments, give instruction in approved methods of production, and inspect animals, buildings, and marketable produce. A high standard of cleanliness, both of *personnel* and *matériel*, prevails. Financial assistance of a temporary nature is also given, advances made being generally repaid with promptitude.

The export trade is regulated by the terms of the Commonwealth Commerce Act 1905 and regulations thereunder. The provisions of this Act are set out in detail in Official Year Book No. 6, pp. 431–2. It will be sufficient to note here that the true trade description, etc., must be marked on all produce intended for export, while official inspection ensures the maintenance of purity and quality. Upon request of the exporter the goods are certificated by the inspector.

3. **Mixed Farming.**—Dairying is not now, as formerly, wholly confined to farmers, since many graziers in a large way of business have lately given it their attention. In non-coastal regions it is generally carried on in conjunction with agriculture and sheep-raising, sufficient fodder being grown to carry the cattle through the winter months. Local wants are thus met, and in many places remote from the metropolis well-equipped factories have been established.

4. **Factory System.**—Cream separation and butter-making are often carried on together under the co-operative system. The creation of large central butter factories, supplied by numerous separating establishments or “creameries,” has resulted in a considerable reduction in the cost of manufacture, since improved appliances, such as refrigerators, may be profitably worked at the larger establishments. The product is also of a more uniform quality. The number of farmers who adhere to hand processes is rapidly diminishing. Formerly the average quantity of milk used per pound of hand-made butter was about 3 gallons, but separator butter requires less than 2½ gallons.

5. **Butter and Cheese Factories.**—The factories in the Commonwealth for the manufacture of butter, cheese, and condensed milk numbered 579 in 1920–21. These were distributed in the various States as follows:—New South Wales, 168; Victoria, 184; Queensland, 141; South Australia, 44; Western Australia, 8; Tasmania, 34.

§ 2. Milk, Butter, and Cheese.

1. **Dairy Herds.**—Following the drought year 1902 there was up to 1911 a general increase in the number of dairy cows; the returns for 1912 and the three years following, however, shew a decrease in all the States, with the exception of Western Australia. Satisfactory increases were again noted in 1916 and 1917, while the returns for the next two years remained stationary, followed by a substantial increase of over 100,000 dairy cattle during 1920. In New South Wales, Victoria, South Australia, and Tasmania—as will be seen from the table given below—the proportion of dairy cattle to all cattle is high. In Queensland, the Northern Territory, and Western Australia there is a greatly preponderating number of other cattle, dairying not being firmly established in the tropical regions of the Continent. In southern Queensland, however, the industry has developed remarkably during the last decade. The figures for the Northern Territory are rough estimates only:—

CATTLE AND DAIRY CATTLE, COMMONWEALTH, 1916 TO 1920.

State.		1916.	1917.	1918.	1919.	1920.
New South Wales	{ All Cattle ..	2,757,713	3,148,309	3,271,782	3,075,954	3,367,880
	{ Dairy Cows ..	742,544	776,662	717,910	697,140	757,534
Victoria	{ All Cattle ..	1,175,098	1,371,049	1,596,544	1,631,120	1,575,159
	{ Dairy Cows ..	488,086	534,388	592,079	623,652	620,005
Queensland	{ All Cattle ..	4,765,657	5,316,558	5,786,744	5,940,433	6,455,067
	{ Dairy Cows ..	343,311	399,508	381,505	373,146	448,634
South Australia	{ All Cattle ..	288,887	313,245	342,768	349,562	376,399
	{ Dairy Cows ..	86,311	96,661	103,230	106,982	117,536
Western Australia	{ All Cattle ..	863,930	957,086	943,847	880,644	849,503
	{ Dairy Cows ..	33,788	37,979	42,133	42,993	47,719
Tasmania	{ All Cattle ..	179,360	197,938	218,234	214,442	203,202
	{ Dairy Cows ..	52,522	58,910	64,511	64,073	63,681
Northern Territory	{ All Cattle ..	428,862	638,431	570,039	610,534	639,840
	{ Dairy Cows ..	70	70	70	70	70
Federal Territory	{ All Cattle ..	8,230	13,408	8,894	8,378	7,387
	{ Dairy Cows ..	719	728	598	480	459
Commonwealth	{ All Cattle ..	10,467,737	11,956,024	12,738,852	12,711,067	13,499,737
	{ Dairy Cows ..	1,747,351	1,904,906	1,902,036	1,908,536	2,055,638

2. **Milk.**—The annual quantity of milk produced per dairy cow varies greatly with locality and season, probably reaching as high as 500 gallons, but averaging for the whole of Australia, for all dairy cows and for all seasons, prior to 1916, considerably under 300 gallons per annum. During 1916 and 1917 the average yield exceeded that quantity, amounting to 320 and 333 gallons respectively, but, owing to adverse weather conditions, it again failed to reach the 300 gallons mark in 1918 and 1919, the respective averages being only 293 and 278 gallons per cow. Seasonal conditions favourable to the dairying industry resulted in a gain of 36 gallons per cow during 1920. The best yields over a series of years appear to be in Victoria, South Australia and New South Wales, while Queensland and Tasmania in normal years are above Western Australia. In the following table the annual average yields per cow for the last five years are taken from the number of dairy cows which were in milk during any part of the year. The average given is considerably below that for cows which were yielding during the greater part of the year. The highest averages obtain in those States which have most extensively adopted scientific methods of dairying, such as systematic breeding, culling of herds, milk testing, etc.

PRODUCTION OF MILK, COMMONWEALTH, 1916 TO 1920.

Heading.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Fed. Terr.	C'wealth. (b)
1916—								
Dairy cows (a) .. No.	742,801	469,587	339,277	82,413	31,065	50,031	628	1,715,802
Production 1,000 gals.	223,920	186,593	86,938	29,054	6,826	13,364	84	549,679
Aver. per cow .. gals.	304	397	256	363	220	267	134	320
1917—								
Dairy cows (a) .. No.	759,603	511,247	371,410	91,486	35,883	55,716	724	1,826,059
Production 1,000 gals.	247,398	199,738	105,384	32,309	7,550	14,843	131	607,353
Aver. per cow .. gals.	326	391	284	353	210	266	182	333
1918—								
Dairy Cows (a) .. No.	747,286	563,234	390,507	99,945	40,056	61,710	663	1,903,401
Production 1,000 gals.	206,925	207,102	87,580	32,243	8,544	15,796	170	558,360
Aver. per cow .. gals.	277	368	224	323	213	256	256	293
1919—								
Dairy Cows (a) .. No.	707,525	607,866	377,325	105,106	42,563	64,292	539	1,905,216
Production 1,000 gals.	203,707	196,884	71,856	30,899	9,608	16,503	90	529,547
Aver. per cow .. gals.	288	324	190	294	226	257	167	275
1920—								
Dairy cows (a) .. No.	727,337	621,829	410,890	112,259	45,356	63,877	469	1,982,017
Production 1,000 gals.	250,093	204,522	104,659	34,657	10,234	19,000	103	623,275
Aver. per cow .. gals.	344	329	255	309	226	297	223	314

(a) Mean for the year.

(b) Exclusive of Northern Territory.

3. Butter and Cheese.—The butter output shews, in general, a tolerably steady increase since the drought year 1902, the most marked development being in Queensland. During the past five years the production of butter was severely hampered by droughty conditions, and the output during 1918 and 1919 fell considerably. The 1920 season, unlike the two previous ones, was markedly favourable for dairying, uniformly good conditions conducive to high production existing throughout the dairying districts of the Commonwealth, with the result that the production of butter in 1920 was over 40,000,000 lbs. in excess of that for 1919.

The manufacture of cheese has been steadily increasing throughout the Commonwealth during recent years, the 1917 production being the highest yet recorded. A sharp decline was noticeable in 1918, followed by a satisfactory increase, despite droughty conditions, in 1919. The relatively higher prices ruling for butter was probably responsible for a decline in the output of cheese during 1920. Particulars for the past five years are as follows:—

PRODUCTION OF BUTTER AND CHEESE, COMMONWEALTH, 1916 TO 1920.

State.	1916.	1917.	1918.	1919.	1920.
BUTTER.					
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales	a79,355,639	a80,460,225	a65,991,738	a63,127,160	a84,239,641
Victoria	a59,568,771	a64,405,711	a66,240,403	a60,218,945	a64,938,458
Queensland	28,967,279	38,930,690	32,371,575	26,218,514	40,751,373
South Australia	a9,798,142	a10,482,895	a10,444,789	a9,810,335	a11,897,279
Western Australia	1,080,466	1,361,484	1,789,390	1,980,273	2,212,311
Tasmania	3,691,649	4,848,227	4,947,560	4,290,724	4,014,402
Federal Territory	a8,832	a7,782	a17,220	a7,840	a8,400
Commonwealth	182,470,778	200,497,014	181,802,675	165,648,791	208,081,864
CHEESE.					
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales	a7,830,239	a7,709,676	a5,982,120	a6,762,467	a6,407,209
Victoria	a5,869,562	a5,285,003	a6,055,964	a7,735,023	a3,656,571
Queensland	8,495,825	11,142,114	8,636,700	8,296,318	11,512,262
South Australia	a2,476,081	a2,449,716	a2,412,388	a2,540,183	a1,804,696
Western Australia	665	100	200	821	854
Tasmania	736,500	754,196	702,963	861,460	799,432
Commonwealth	25,408,872	27,430,805	23,790,240	26,196,272	24,160,524

(a) For year ended 30th June of year following.

4. **Concentrated Milk.**—"Condensed" or "concentrated" milk denotes milk the bulk of which is reduced by evaporation. Small quantities of such milk were made prior to 1911, in which year the output for the Commonwealth was nearly doubled. Increasing quantities were annually manufactured till 1915, when a substantial falling off was in evidence in each of the three contributing States. During the next five years, however, the condensed milk industry developed considerably, particularly in Victoria, where the output for 1920 was 25,953,445 lbs. greater than that for 1915. There is still an import of milk, but the exports in each year far outweigh the quantity imported as will be seen from the tables hereunder. No condensed or concentrated milk is made in South Australia, Western Australia, or Tasmania. In New South Wales, Victoria, and Queensland the following are the returns for the last five years :—

CONDENSED, CONCENTRATED, OR POWDERED MILK MADE, 1916 TO 1920.

Year.	N.S.W.	Victoria.	Queensland.	Commonwealth.
	lbs.	lbs.	lbs.	lbs.
1916	5,829,990a	33,280,635a	6,584,272	45,694,897
1917	8,973,916a	37,805,070a	9,409,059	56,188,045
1918	10,680,409a	45,251,710a	6,845,610	62,777,729
1919	12,969,679a	44,219,389a	9,170,034	66,359,102
1920	14,938,147a	42,643,871a	13,362,464	70,944,482

(a) For year ended 30th June of year following.

5. **Oversea Trade in Milk, Butter, and Cheese.**—The following tables give the imports, exports, and net exports of butter, cheese, and milk. In each of the five years the exports of butter, cheese, and condensed milk exceeded the imports.

IMPORTS, EXPORTS, AND NET EXPORTS OF BUTTER, CHEESE AND MILK, COMMONWEALTH, 1916-17 TO 1920-21.

Products.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
IMPORTS.					
Butter lbs.	517,091	8,610	16,439	36,774	33,762
" £	38,749	592	1,087	2,282	2,997
Cheese lbs.	86,035	45,976	13,903	28,625	72,110
" £	5,536	2,940	1,098	2,988	8,371
Milk—concentrated and preserved(a) lbs.	1,607,445	772,987	575,934	1,075,887	603,565
" £	63,713	42,458	30,802	40,029	30,883
EXPORTS.					
Butter lbs.	75,361,869	72,277,526	41,114,764	39,006,304	92,420,995
" £	5,338,848	4,903,825	3,191,999	3,201,695	11,067,104
Cheese lbs.	10,586,456	8,427,098	2,303,308	7,524,900	9,531,310
" £	420,600	350,819	118,855	377,905	514,252
Milk—concentrated and preserved(a) lbs.	16,453,839	25,690,663	27,962,938	35,568,218	37,381,955
" £	553,993	1,029,424	1,092,911	1,606,310	2,159,167
NET EXPORTS.(b)					
Butter lbs.	74,844,778	72,268,916	41,098,325	38,969,530	92,387,233
" £	5,300,099	4,903,825	3,191,999	3,299,413	11,064,107
Cheese lbs.	10,500,421	8,381,122	2,289,405	7,496,285	9,459,200
" £	415,064	347,879	117,757	374,917	505,881
Milk—concentrated and preserved(a) lbs.	14,846,394	24,917,676	27,387,004	34,492,331	36,778,330
" £	490,280	986,566	1,062,109	1,557,281	2,158,284

(a) See definition above. (b) Excess of exports over imports.

6. Local Consumption of Butter and Cheese.—The total production of butter and cheese, with the net export for the corresponding period subtracted or added, gives approximately the quantity available for consumption in the Commonwealth. In the period considered hereunder the local supply of cheese was adequate:—

BUTTER AND CHEESE FOR LOCAL CONSUMPTION, 1916 TO 1920.

Products.	1916.	1917.	1918.	1919.	1920.
	lbs.	lbs.	lbs.	lbs.	lbs.
Butter .. Total	107,620,000	128,228,098	140,704,350	126,679,261	115,694,631
" .. Per head of population ..	21.83	25.73	27.69	23.88	21.38
Cheese .. Total	14,908,451	19,049,683	21,500,835	18,699,987	14,701,324
" .. Per head of population ..	3.03	3.82	4.23	3.53	2.72

The quantity available for consumption in 1920 averaged nearly 21½ lbs. of butter and about 2¾ lbs. of cheese per head of population, an amount probably unsurpassed anywhere. The consumption of butter and cheese in the United Kingdom in normal times is given as about 20 lbs. per head per annum.

§ 3. Pigs, Bacon, etc.

1. Pigs.—Attention has been paid, both privately and by the various State Governments, to improving the breed, and consequently the market value of pigs. The number of pigs in the Commonwealth from 1916 to 1920 is shewn below:—

NUMBER OF PIGS, COMMONWEALTH, 1916 TO 1920.

State.	1916.	1917.	1918.	1919.	1920.
New South Wales (b) ..	359,504	395,639	294,338	253,338	305,967
Victoria (a) ..	254,436	323,159	267,819	186,810	175,275
Queensland ..	129,733	172,699	140,966	99,593	104,370
South Australia (b) ..	118,542	110,353	79,078	60,295	78,395
Western Australia ..	90,756	111,844	85,863	58,155	60,581
Tasmania (a) ..	53,033	54,053	44,328	35,530	38,116
Northern Territory ..	500	500	1,200	1,675	1,416
Federal Territory (b) ..	259	518	310	572	286
Commonwealth ..	1,006,763	1,169,365	913,902	695,968	764,406

(a) As on 1st March of year following.

(b) As on 30th June of year following.

An examination of the returns of pigs shews remarkable fluctuations. There was a heavy falling off in 1915, followed by substantial increases during 1916 and 1917 in which latter year the number of pigs was the highest ever recorded in Australia. Since 1917 the numbers have decreased in all the States, and the Commonwealth total in 1920 represents a decline of 35 per cent. on the 1917 maximum number recorded. The number of pigs per head of population, and the number per square mile, will be found in the tables of live stock, pages 206 and 207.

2. Bacon and Ham.—During the past five years the production of bacon and ham has fluctuated between the record quantity of 66,181,218 lbs. manufactured in 1918 and 50,250,487 lbs. in 1920, the average for the period amounting to 58,104,078 lbs., which is far in excess of any previous five-yearly average.

PRODUCTION OF BACON AND HAM, COMMONWEALTH, 1916 TO 1920.

State.	1916.	1917.	1918.	1919.	1920.
	lbs.	lbs.	lbs.	lbs.	lbs.
New South Wales(a) ..	15,779,369	18,544,053	16,801,370	16,657,362	16,249,762
Victoria(a) ..	18,146,328	21,324,846	22,212,395	19,385,509	15,139,100
Queensland ..	10,427,649	14,791,540	16,476,480	12,155,489	11,337,050
South Australia(a) ..	3,993,137	6,591,064	6,567,394	5,810,616	4,172,372
Western Australia(b) ..	2,058,027	2,362,604	2,813,650	2,609,284	2,077,662
Tasmania ..	992,779	1,208,819	1,309,633	1,128,096	1,267,061
Federal Territory(a) ..	8,787	11,091	296	12,236	7,480
Commonwealth ..	51,406,076	64,924,017	66,181,218	57,758,592	50,250,487

(a) For year ended 30th June of year following. (b) A portion only from pigs slaughtered in the State, balance imported and subsequently cured.

3. Oversea Trade in Pig Products.—The oversea trade in pigs and pig products is shewn in the following tables :—

IMPORTS, EXPORTS, AND NET EXPORTS OF BACON AND HAM, FROZEN PORK, PIGS, AND LARD, COMMONWEALTH, 1916-17 TO 1920-21.

Particulars.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
BACON AND HAM.					
Imports lbs.	90,626	5,097	42,624	15,047	14,610
" £	4,787	353	2,169	1,067	1,479
Exports lbs.	1,006,431	5,068,952	5,637,565	3,040,933	3,113,578
" £	60,414	321,635	378,723	258,890	323,280
Net Exports .. lbs.	915,805	5,063,855	5,594,941	3,025,886	3,098,968
" £	55,627	321,282	376,554	257,823	321,801

FROZEN PORK.

Imports lbs.	73,294	121	..	..	..
" £	2,680	3	..	..	..
Exports lbs.	32,681	262,503	839,557	371,397	163,303
" £	1,341	11,915	40,325	19,149	9,370
Net Exports .. lbs.	-40,613	262,382	839,557	371,397	163,303
" £	-1,339	11,912	40,325	19,149	9,370

PIGS.

Imports No.	6	20	4	16	11
" £	23	438	102	94	65
Exports No.	19	36	60	164	166
" £	146	209	479	1,044	1,199
Net Exports .. No.	13	16	56	148	155
" £	123	-229	377	950	1,134

NOTE.—The minus sign (—) signifies net imports.

IMPORTS, EXPORTS, AND NET EXPORTS OF BACON AND HAM, FROZEN PORK, PIGS, AND LARD, COMMONWEALTH, 1916-17 TO 1920-21—*continued.*

Particulars.		1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
LARD.						
Imports..	lbs.	408,552	7,208	29,575	22,001	42,795
"	£	12,225	380	1,475	1,092	1,825
Exports..	lbs.	1,796,821	1,466,703	6,016,825	7,969,444	3,118,105
"	£	59,205	56,353	205,694	375,910	153,034
Net Exports	lbs.	1,388,269	1,459,495	5,987,250	7,947,443	3,075,310
"	£	46,980	55,973	204,219	374,818	151,259

From 1901 to 1903 there was a considerable net import of bacon and ham, but for the following years, up to 1920-21, with the exception of 1915-16, when the figure was small, there was a large net export. The local production of pork and lard for each of the years 1911 to 1913 was more than sufficient for the local demand; during 1914-15, 1915-16, and 1916-17, however, the imports of frozen pork exceeded the exports by 25,546 lbs., 859,985 lbs., and 40,613 lbs. respectively, while in 1915-16 the net import of lard amounted to 3,530,655 lbs.

The net exports of pig products have assumed fairly large proportions in recent years. During the five years ended 1920-21, the average annual net export amounted to nearly half a million pounds sterling, the bulk of the shipments consisting of bacon, ham and lard.

4. **Local Consumption of Bacon and Ham.**—From 1904 to 1920 the production of bacon and ham was sufficient to meet the local demand, and there was a surplus for export.

BACON AND HAM AVAILABLE FOR LOCAL CONSUMPTION, 1916 TO 1920.

Particulars.	1916.	1917.	1918.	1919.	1920.
	lbs.	lbs.	lbs.	lbs.	lbs.
Total ..	50,490,271	59,860,162	60,586,277	54,732,706	47,151,519
Per head of population ..	10.27	12.01	11.92	10.32	8.71

5. **Total Dairy Production.**—The total dairy production of the Commonwealth in 1920 is shewn below:—

TOTAL DAIRY PRODUCTION, COMMONWEALTH, 1920.

Where Produced.	N.S.W. (a)	Victoria. (a)	Q'land.	S. Aust. (a)	W. Aust.	Tasmania.	Fed. Terr. (a)	C'wealth.
MILK.								
Used for—	gallons.	gallons.	gallons.	gallons.	gallons.	gallons.	gallons.	gallons.
Butter ..	191,324,376	151,513,321	82,252,993	26,333,714	5,372,040	9,760,000	31,510	466,587,954
Cheese ..	6,649,023	3,612,143	9,355,216	1,728,728	618	825,200	..	22,170,928
Condensing and concentrating ..	4,143,860	9,742,363	3,860,824	..	..	..	..	17,247,047
Other purposes ..	47,980,951	39,634,643	9,690,451	6,594,267	4,860,900	8,414,800	73,280	611,727,292
Total ..	250,093,210	204,522,470	104,659,484	34,636,709	10,233,558	19,000,000	104,790	662,326,221

BUTTER.

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
In Factories	79,864,745	59,851,735	33,464,870	8,222,920	1,218,681	2,458,978	190,081,929
On Dairy and other Farms ..	4,394,896	5,036,723	2,286,503	3,674,359	993,630	1,555,424	17,999,935
Total ..	84,259,641	64,938,458	40,751,373	11,897,279	2,212,311	4,014,402	208,081,864

(a) For year ended 30th June, 1921.

(b) Including 10,000 gallons, Northern Territory.

TOTAL DAIRY PRODUCTION, COMMONWEALTH, 1920—*continued.*

Where Produced.	N.S.W. (a)	Victoria. (a)	Q'land.	S. Aust. (a)	W. Aust.	Tasmania	F. Ter. (a)	C'wealth.
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CHEESE.

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
In Factories ..	5,646,248	3,143,619	11,509,762	1,804,696	..	563,554	..	22,667,879
On Dairy & other Farms ..	760,961	492,952	2,500	..	354	235,878	..	1,492,645
Total ..	6,407,209	3,636,571	11,512,262	1,804,696	354	799,432	..	24,160,524

CONDENSED, CONCENTRATED OR POWDERED MILK.

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
In Factories ..	14,938,147	42,643,871	13,362,464	..	..	..	..	70,944,482

BACON AND HAM.

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
In Factories ..	14,604,807	13,383,107	11,031,691	3,389,170	61,874,220	834,106	..	45,121,101
On Dairy & other Farms ..	1,644,955	1,755,993	305,859	783,202	203,442	428,955	7,480	5,129,386
Total ..	16,249,762	15,139,100	11,337,050	4,172,372	2,077,662	1,267,061	7,480	50,250,487

(a) For year ended 30th June, 1921. (b) A portion only from pigs slaughtered in the State, the balance being imported and subsequently cured.

§ 4. Poultry Farming.

1. Development of the Industry.—Poultry stocks are largely maintained by farmers, and production therefrom furnishes a considerable addition to the annual agricultural or dairying returns. During recent years, however, poultry-keeping has assumed an independent position among rural industries, while it is also carried on in conjunction with pig farming. Special poultry farms have been instituted for scientific breeding, and poultry experts engaged by the State Governments give lectures and instruction. Poultry for consumption is extensively reared, and the egg-producing qualities of the birds have also been greatly improved by careful breeding. Co-operative egg-collecting circles have been formed in some districts; eggs are also delivered with the milk and cream to the local butter factories, and thence forwarded to market.

2. Poultry Products.—There is some difficulty in obtaining correct figures for the yield of poultry products. The following values are returned :—

ESTIMATED VALUE OF POULTRY AND EGGS, COMMONWEALTH, 1916-17 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania. (a)	C'wealth.
	£	£	£	£	£	£	£
1916-17 ..	1,908,000	1,714,770	324,958	618,441	201,284	250,000	5,017,453
1917-18 ..	2,082,000	2,160,650	295,882	669,105	188,982	250,000	5,646,619
1918-19 ..	2,501,000	2,738,620	319,602	690,539	189,471	300,000	6,739,232
1919-20 ..	2,814,000	3,579,230	356,590	924,986	191,288	300,000	8,166,004
1920-21 ..	3,196,000	4,545,620	449,827	1,164,999	189,658	300,000	9,846,104

(a) Estimated.

3. Oversea Trade in Poultry Products.—The imports and exports of eggs shew a balance on the side of imports in 1916-17. During the next four years, however, the exports exceeded the imports, the value of the excess amounting to £1,028, £577, £17,231, and £52,130 respectively.

The number of eggs imported into the Commonwealth since 1916-17 amounted to 79,033 dozen, of which number China supplied 61,511 dozen, or nearly 78 per cent.

There is at present only a small oversea trade in either live or frozen poultry, the values of the net exports during 1920-21 being £1,891 and £29,635 respectively.

IMPORTS, EXPORTS, AND NET EXPORTS OF EGGS AND OF LIVE AND FROZEN POULTRY, COMMONWEALTH, 1916-17 TO 1920-21.

Particulars.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
EGGS.					
Imports doz.	35,762	9,171	2,633	4,015	27,452
" £	1,485	434	169	230	1,802
Exports doz.	8,651	16,136	8,409	211,034	413,602
" £	585	1,462	746	17,461	53,932
Net Exports .. doz.	- 27,111	6,965	5,776	207,019	386,150
" £	- 900	1,028	577	17,231	52,130

EGG CONTENTS.					
Imports lbs.	20,452	8,669	344	4,992	23,898
" £	3,480	1,708	94	1,523	4,446
Exports lbs.	(a)	(a)	(a)	(a)	(a)
" £	14,259	1,508	1,823	48,675	27,298
Net Exports .. lbs.	(a)	(a)	(a)	(a)	(a)
" £	10,779	- 200	1,729	47,152	22,852

LIVE POULTRY.					
Imports No.	480	753	693	721	484
" £	1,127	383	878	1,564	850
Exports No.	3,105	988	1,699	2,477	2,886
" £	3,523	823	1,231	2,448	2,741
Net Exports .. No.	2,625	235	1,006	1,756	2,402
" £	2,396	440	353	884	1,891

FROZEN POULTRY.					
Imports lbs.	3,096	931	3,752	10,273	4,087
" £	137	39	208	602	328
Exports pair	5,400	6,541	8,298	13,346	22,376
" £	3,904	3,549	5,141	10,760	29,963
Net Exports ..	(a)	(a)	(a)	(a)	(a)
" £	3,767	3,510	4,933	10,158	29,635

NOTE.—The minus sign (—) signifies net imports. (a) Quantity not available.

§ 5. Bee Farming.

1. The Bee-farming Industry.—Bee farming, like poultry farming, is ordinarily an adjunct to agricultural or dairying industries. The returns of honey from productive hives during 1920-21 gave an average of 57 lbs. per hive, while the average quantity of wax was $\frac{1}{2}$ lb. per hive.

2. **Production of Honey and Beeswax.**—The particulars of honey and beeswax production are as given in the following table:—

**NUMBER OF HIVES AND PRODUCTION OF HONEY AND BEESWAX,
SEASON 1920-21.**

State.	Bee Hives.			Honey Produced.		Beeswax Produced.	
	Pro- ductive.	Unpro- ductive.	Total.	Quantity.	Value.	Quantity.	Value.
	No.	No.	No.	lbs.	£	lbs.	£
New South Wales ..	28,001	6,386	34,387	1,441,617	48,054	23,234	2,323
Victoria ..	31,306	5,769	37,075	1,721,942	47,436	24,222	2,444
Queensland ..	10,664	4,727	15,391	426,662	10,631	7,501	707
South Australia ..	20,063	2,212	22,275	1,821,811	37,954	17,501	1,604
Western Australia ..	5,215	1,486	6,701	149,226	3,318	3,819	306
Tasmania ..	3,863	2,308	6,171	85,125 [*]	3,014	1,788	156
Federal Territory ..	40	1	41	1,760	58	86	9
Commonwealth ..	99,152	22,889	122,041	5,651,143	150,465	78,181	7,549

QUANTITY OF HONEY AND BEESWAX PRODUCED, 1916-17 TO 1920-21.

Season.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Fed. Ter.	C'wealth.
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HONEY.

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1916-17	1,660,518	1,547,023	352,099	961,723	184,910	84,121	4,780	4,795,174
1917-18	3,863,430	4,974,888	771,015	1,279,433	353,019	124,482	12,081	11,383,348
1918-19	879,356	1,644,447	410,182	1,683,725	415,616	151,605	420	5,185,351
1919-20	472,020	1,396,704	305,586	552,976	336,206	80,468	320	3,144,280
1920-21	1,441,617	1,724,942	426,662	1,821,811	149,226	85,125	1,760	5,651,143

BEESWAX.

	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1916-17	29,387	22,131	7,042	9,793	3,985	2,059	47	74,444
1917-18	53,314	64,980	11,519	12,942	5,459	2,857	28	151,099
1918-19	19,231	25,286	9,099	14,653	6,621	3,087	..	77,977
1919-20	12,195	24,735	7,215	7,350	6,611	2,329	..	60,435
1920-21	23,234	24,222	7,501	17,501	3,849	1,788	86	78,181

The quantity of honey and beeswax produced from year to year naturally varies according to the conditions of the seasons. During the last five years New South Wales has produced 8,316,941 lbs. of honey and 137,361 lbs. of beeswax, while the Victorian figures amounted to 11,288,004 lbs. and 161,354 lbs. respectively for honey and beeswax. These two States together accounted for 65 per cent. of the total production of honey, and 67½ per cent. of that of beeswax. The States following next in order of importance were South Australia, Queensland, and Western Australia.

3. **Oversea Trade in Bee Products.**—In normal years honey is produced in the Commonwealth in sufficient quantities to supply all local requirements, and a considerable quantity is sent oversea. During the past five years the value of the exports amounted to £361,579, or an annual average of £72,316. It is believed that this export could be considerably increased. Australian honey exhibited at the Franco-British Exhibition in London in 1908 obtained the highest award. The more general use of frame hives in recent years has affected the production of wax, and as a result the quantity imported has exceeded that exported during each of the past five years.

**IMPORTS, EXPORTS, AND NET EXPORTS OF HONEY AND BEESWAX.
COMMONWEALTH, 1916-17 TO 1920-21.**

Particulars.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
HONEY.					
Imports lbs.	491	382	150	1,093	201,548
" £	18	12	4	35	5,838
Exports lbs.	333,407	3,199,691	8,747,760	588,384	97,541
" £	9,526	79,225	248,685	18,815	5,328
Net Exports .. lbs.	332,916	3,199,309	8,747,610	587,291	- 104,007
" £	9,508	79,213	248,681	18,780	- 510
BEESWAX.					
Imports lbs.	19,195	54,686	36,136	26,149	28,235
" £	1,544	4,842	3,493	1,969	2,452
Exports lbs.	7,234	1,471	7,269	15,853	7,535
" £	548	134	598	1,467	810
Net Exports .. lbs.	- 11,961	- 53,215	- 28,867	- 10,296	- 20,700
" £	- 996	- 4,708	- 2,895	- 502	- 1,642

NOTE.—The minus sign (—) signifies net imports.

§ 6. Summary of Australian Farmyard and Dairy Products.

The value of the farmyard and dairy products raised in the Commonwealth in 1920 was as follows :—

**VALUE OF FARMYARD AND DAIRY PRODUCTS RAISED IN THE
COMMONWEALTH, 1920.**

Produce.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	Fed. Ter.	C'wealth.
	£	£	£	£	£	£	£	£	£
Milk, consumed as such	3,948,432	3,263,217	797,443	542,653	400,012	692,468	823	6,030	9,651,108
Butter	9,305,581	7,642,617	4,200,138	1,376,503	247,608	356,554	..	928	23,129,927
Cheese	374,390	218,716	532,614	97,600	19	39,342	..	..	1,262,631
Condensed and concentrated milk	535,818	1,885,070	509,066	..	..	..	..	..	2,929,954
Bacon and ham ..	1,080,127	1,375,341	927,797	312,235	146,802	93,900	..	497	3,938,703
Pork	378,433	445,830	221,567	166,486	155,047	98,122	1,305	..	1,466,790
Lard	24,922	49,551	34,531	11,581	4,789	5,378	..	11	130,763
Livestock	52,629	..	3,513	36,200	6,065	1,940	..	..	100,417
Poultry and eggs ..	3,196,000	4,545,620	449,827	1,164,999	182,618	300,000	..	(a)	9,846,104
Honey and wax ..	50,377	49,880	11,338	39,558	3,624	3,170	..	67	158,014
Total	18,946,709	19,475,869	7,657,904	3,747,820	1,153,624	1,590,874	2,128	7,533	52,612,461

(a) Not available.

§ 7. Summary of Australian Farmyard and Dairy Products Exported, 1916-17 to 1920-21.

The quantities and values of Australian farmyard and dairy products exported from the Commonwealth during each of the last five years are shewn below :—

QUANTITIES OF AUSTRALIAN FARMYARD AND DAIRY PRODUCTS EXPORTED FROM THE COMMONWEALTH, 1916-17 TO 1920-21.

Products.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Beeswax lbs.	7,234	1,450	7,252	14,438	5,838
Butter "	74,878,634	72,277,526	41,114,764	39,008,304	92,420,995
Cheese "	10,569,279	8,426,641	2,303,276	7,516,412	9,530,221
Egg albumen and yolk "	(a)	(a)	(a)	(a)	(a)
Eggs doz.	8,386	15,922	8,359	210,784	413,477
Feathers, undressed "	(a)	(a)	(a)	(a)	(a)
Honey lbs.	333,407	3,199,691	8,747,760	588,384	97,541
Lard "	1,681,918	1,465,352	6,016,383	7,931,014	3,118,105
Meats—					
Bacon and ham "	1,005,171	5,067,946	5,636,891	3,040,933	3,113,488
Frozen poultry pair	5,400	6,541	8,298	13,346	22,376
Frozen pork lbs.	32,681	262,503	839,557	371,397	163,303
Milk, concentrated and preserved "	15,777,333	25,581,708	27,964,998	35,548,082	37,261,554
Pigs, living No.	19	36	60	164	166
Poultry, living "	3,105	983	1,699	2,477	2,880

(a) Quantity not available.

VALUE OF AUSTRALIAN FARMYARD AND DAIRY PRODUCTS EXPORTED FROM THE COMMONWEALTH, 1916-17 TO 1920-21.

Products.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Beeswax "	548	133	596	1,325	628
Butter "	5,301,273	4,904,417	3,193,086	3,301,895	11,067,104
Cheese "	419,628	350,791	113,850	377,398	514,128
Egg albumen and yolk "	8,327	854	1,823	48,875	27,055
Eggs "	573	1,450	743	17,434	53,920
Feathers, undressed "	(a)	(a)	(a)	(a)	(a)
Honey "	9,526	79,225	243,685	18,815	5,328
Lard "	56,126	56,292	205,675	374,641	153,084
Meats—					
Bacon and ham "	60,358	321,573	378,685	258,890	323,253
Frozen poultry "	3,904	3,549	5,141	10,760	26,963
Frozen pork "	1,341	11,915	40,325	19,149	9,370
Milk, concentrated and preserved "	531,976	1,025,895	1,091,889	1,605,161	2,184,761
Pigs, living "	146	208	479	1,044	1,199
Poultry, living "	3,523	819	1,231	2,448	2,731
Total "	6,397,249	6,757,122	5,287,269	6,038,228	14,373,657

§ 8. British Imports of Dairy Products.

1. Value of Britain's Imports of Dairy Products.—In the following table are given the quantities and values of the principal dairy products imported into the United Kingdom during the years 1916 to 1920 :—

PRINCIPAL DAIRY PRODUCTS IMPORTED INTO THE UNITED KINGDOM, 1916 TO 1920.

Products.	1916.	1917.	1918.	1919.	1920.
Butter cwts.	2,175,415	1,806,516	1,578,658	1,560,204	1,702,203
" "	18,964,002	18,895,707	19,769,738	19,854,427	24,518,748
Cheese cwts.	2,604,124	2,946,066	2,357,103	2,118,250	2,750,260
" "	12,945,765	19,462,390	15,905,858	15,170,620	20,633,946
Milk—Concentrated and preserved cwts.	1,752,292	1,700,511	2,707,761	3,347,645	2,127,199
" "	5,120,879	6,623,666	13,472,544	17,088,310	13,063,697
Bacon and ham cwts.	8,990,791	7,747,740	12,028,505	10,094,352	5,935,981
" "	41,223,147	48,769,759	103,410,221	89,681,616	53,339,250
Pork (a) cwts.	334,284	184,177	111,345	160,263	435,181
" "	1,301,209	899,346	763,484	1,075,562	3,443,332

(a) Frozen, chilled, and salted.

2. **Butter.**—Australia has for many years past contributed large quantities of the butter annually imported into the United Kingdom. The quantity sent forward during 1920 was less than in previous years, owing to diminished supplies in Australia resulting from unfavourable seasons, still the value of the shipments amounted to more than £3,000,000.

IMPORTS OF BUTTER INTO THE UNITED KINGDOM, 1920.

Country from which Imported.	Quantity.	Value.	Country from which Imported.	Quantity.	Value.
	Cwt.	£		Cwt.	£
Denmark ..	817,268	11,762,845	Russia.. ..	19,308	280,654
New Zealand ..	275,406	3,828,280	Norway ...	2,050	28,436
Australia ..	227,542	3,282,376	Foreign Countries		
Argentine Republic	138,862	2,038,594	n.e.i. ..	10,231	143,103
Netherlands ..	102,567	1,583,482	British Possessions		
United States ..	37,261	557,152	n.e.i. ..	5,367	78,821
Canada ..	32,140	477,250			
Belgium ..	34,201	457,755	Total ..	1,702,203	24,518,748

The average price of the best quality Australian butter in London during the past ten years is shewn in the following table:—

AVERAGE PRICE OF AUSTRALIAN BUTTER IN LONDON, 1911 TO 1920.

Year.	Average Top Price per Cwt.	Year.	Average Top Price per Cwt.
	s. d.		s. d.
1911	114 0	1916	169 6
1912	119 0	1917	(a) 206 0
1913	114 6	1918	(b) 252 0
1914	119 0	1919	(b) 252 0
1915	144 6	1920	(b) 299 9

(a) Proclaimed price.

(b) Flat rate for all imported butter.

The British Government under contract purchased the surplus output of Australian butter during the period from 1st July, 1918, to 31st July, 1920. The price paid was 175s. per cwt. for butter scoring 90 points, a shilling per cwt. being added or deducted as the grading score exceeded or came below that standard. On the 1st August, 1920, this contract was extended for a further period, the price of butter having been increased to 240s. per cwt., subsequently raised to 272s., the grading price being likewise increased to 1s. 6d. per cwt. This contract terminated on 31st March, 1921; after which date butter sales again reverted to the open market in the United Kingdom.

3. **Cheese.**—The value of the United Kingdom cheese imports in 1920 was £20,633,946, of which over nine million pounds' worth was received from New Zealand, and eight and a half million pounds' worth from Canada. Small experimental shipments from Australia were made in 1908 and following years, fair prices being realised. The value of the imports from Australia has increased from £91,729 in 1915 to £514,923 in 1920.

4. **Bacon and Ham.**—Of a total import of bacon and ham valued in 1920 at £53,339,250, the United Kingdom received imports to the value of £32,052,521 from the United States, and £13,365,810 from Canada. The import from Australia was small, experimental shipments only having been made during recent years.

5. **Pork.**—The total value of the United Kingdom imports of pork (including refrigerated, frozen, and salted) was £3,443,332 in 1920. There was a small importation of £1,000 from Australia, but the bulk of the supplies were forwarded from the Argentine Republic and the United States.

6. **Other Products.**—There was practically no shipment to the United Kingdom from Australia of beeswax, poultry, game, lard, eggs, or honey, but frozen rabbits to the value of £1,531,495 were received from the Commonwealth in 1920.

§ 9. Graphical Representation of Dairy Production.

Two graphs shewing respectively the development in dairy production and in the exports of butter will be found on page 210.

SECTION X.

FORESTS, FORESTRY, AND FORESTAL PRODUCTS.

§ 1. The Forests of Australia.

1. Extent of Forests.—Although no definite survey of forest lands has been made on a uniform basis for the different States of Australia, the following table gives the results of careful estimates made for each State :—

FOREST RESERVES AND FOREST AREAS, STATE AND COMMONWEALTH, 1920.

State.	Area of Forest Reserves.		Total Forest Area.	Percentage of State Area.		Percentage of Commonwealth Area.	
	Permanent.	Temporary.		Reserved.	Total Forest.	Reserved.	Total Forest.
	(a)	(b)					
	Acres.	Acres.	Acres.	%	%	%	%
c New South Wales	5,085,050	1,746,069	11,000,000	3.45	5.55	0.36	0.57
Victoria ..	4,092,625	125,500(f)	11,800,000	7.49	20.98	0.22	0.62
Queensland ..	1,122,129	2,671,139	40,000,000	0.88	9.32	0.20	2.10
South Australia	161,027	18,700(f)	3,800,000	0.07	1.56	0.01	0.20
Western Australia	10,008	1,612,000(f)	15,900,000(d)	0.26	2.55	0.09	0.84
Tasmania ..	..	1,028,000	10,000,000	6.13	59.60	0.05	0.53
(e) Commonwealth	10,470,839	7,201,408	92,500,000	..	..	0.93	4.86

(a) Reservations in perpetuity. (b) Reservations which may be cancelled at any time.
 (c) Inclusive of Federal Area. (d) S.W. Division only. (e) Exclusive of Northern Territory and portion of Western Australia. (f) Figures uncertain.

The actual area of wooded land is probably in all cases much greater than that shewn above. For example, that of Western Australia is estimated at 97,900,000 acres; Queensland has probably 143,000,000 acres; and Victoria has a considerable extent of "Mallee" country not included in the above estimate. The basis of estimation for each State in any case cannot be regarded as identical. Considerable areas not included as forest lands possess timber of local value.

The absolute and relative forest areas of Australia and other countries are shewn in the table on the next page :—

RELATIVE AREAS OF FOREST LANDS, AUSTRALIA AND OTHER COUNTRIES.(a)

Country.	Total Wooded Area.	Per- centage of Total Area.	Country.	Total Wooded Area.	Per- centage of Total Area.
	Sq. Miles.	%		Sq. Miles.	%
Australia ..	144,530	4.86	Rumania ..	10,836	21.36
New Zealand ..	26,562	25.63	Sweden ..	90,241	52.20
United Kingdom ..	4,740	3.82	Norway ..	26,685	21.50
France ..	38,620	18.65	Russia in Europe ..	859,375	39.00
Algeria ..	10,249	2.98	United States ..	860,000	24.08
Germany ..	54,015	25.90	Canada ..	625,000	17.34
Switzerland ..	3,290	20.60	Cape of Good Hope ..	537	0.19
Italy ..	17,613	15.92	British India ..	249,867	22.85
Austria ..	37,700	31.66	Japan ..	71,890	48.33
Hungary ..	34,750	29.30			

(a) Areas as before the war.

2. Distribution of Timber.—The characteristics of the forest areas are given in some detail for each State in Official Year Book No. 6, pp. 446–9. The more conspicuous timber regions of Australia as a whole are the eastern and southern portions, including Tasmania, and, again, the south-western portion northwards and eastwards from Cape Leeuwin. In regard to distribution, on the eastern side of the continent the largest timber is found on the crests and coastal slopes of the mountain ranges, but in the south-west, in addition to the vegetation between mountains and sea, a large area of forest stretches inland from the coastal ranges. The hills encircling Adelaide and Yorke and Eyre Peninsulas also bear good forest. The Kimberley district is timbered, and in the Northern Territory and round the shores of the Gulf of Carpentaria there are considerable forest areas. In the coastal regions of parts of West and North-West Australia, and along the shores of the Great Australian Bight and Encounter Bay, there is little forest. The areas in the centre of the continent are thinly timbered.

Special articles relating to Australian Eucalyptus timbers will be found in Official Year Book No. 10, pp. 85–98.

§ 2. Forestry.

1. Objects.—Economic forestry, aiming at the conservation of forestal wealth by safeguarding forests against inconsiderate destruction, and by the suitable re-afforestation of denuded areas, is essential to the preservation of industries dependent upon an adequate supply of timber, and to the perpetuation of a necessary form of national wealth. Though in Australia large areas of virgin forests still remain, the inroads made by timber getters, by agriculturists, and by pastoralists—who have destroyed large areas by “ring-barking”—are considerable, and it is not unlikely that climatological changes are caused thereby. It is stated that beneficial consequences follow on the planting of trees on denuded lands, or along eroding coasts, and that a forest covering beneficially regulates the effects of rainfall.

Successful planting of exotics in various parts of the Commonwealth has demonstrated that the Australian climate is suitable for the cultivation of a large number of the most valuable and beautiful of the world's timber trees.

2. Forestry Departments.—Each State of the Commonwealth has organised a separate forestry department or branch of service specially charged with forestal matters. Forest improvement work is carried on, areas of young forest being cleaned up by the felling and removal of stunted, diseased and suppressed growth, the burning of debris and the making of fire breaks. Provision is made for effective patrols in forest districts to check the ravages caused by fires, often due, it is believed, to carelessness.

3. **Sylvicultural Nurseries and Plantations.**—Recognition of the necessity for systematic sylviculture has led to the creation in most of the States of a number of sylvicultural nurseries and plantations. The locality of these establishments, together with a brief statement of the nature of their activities, is given in previous issues of the Year Book. (Reference may be made to Official Year Book No. 6, pp. 451-3.) Details regarding forest nurseries and plantations are as follows:—

FOREST NURSERIES AND PLANTATIONS, 1920.

Particulars.	New South Wales. (a)	Victoria.	Q'land.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
State Forest Nurseries—							
Number	(b)	6	7	7	1	(d)	21(c)
Area .. (acres)	(b)	40	93	7	17	(d)	157(c)
Plantations—							
Number	(b)	23	40	..	4	(d)	67(c)
Area	(b)	21,939	392	..	700	(d)	23,031(c)
Number of persons employed in Forestry Departments—							
Administrative ..	35	27	49	1	1	1	114
Professional ..	6	5	5	1	4	6	27
General ..	213	100	257	137	76	3	786

(a) Year ended 30th June. (b) Not available. (c) Exclusive of New South Wales.
(d) State Forest nurseries and plantations are being established.

4. **Revenue and Expenditure.**—The revenue and expenditure of the State Forestry Departments from 1916-17 to 1920-21, are given below:—

REVENUE OF STATE FORESTRY DEPARTMENTS, 1916-17 TO 1920-21.

State.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
New South Wales	67,273	70,969	97,592	147,041	190,742
Victoria	50,615	55,917	57,731	67,298	95,517
Queensland	60,865	66,660	71,985	100,584	145,802
South Australia	10,259	14,279	23,880	22,003	23,872
Western Australia	19,058	23,866	41,015	45,278	58,617
Tasmania	3,860	3,860	3,860	7,340	20,444
Commonwealth	211,930	235,582(a)	296,063	389,544	534,994

(a) Including Northern Territory, £31.

EXPENDITURE OF STATE FORESTRY DEPARTMENTS, 1916-17 TO 1920-21.

State.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
New South Wales	73,762	77,688	121,162	134,997	179,540
Victoria	53,551	68,557	60,193	64,213	71,386
Queensland	9,516	13,930	21,877	35,158	72,718
South Australia	22,571	21,381	21,968	26,404	33,924
Western Australia	9,807	10,363	23,656	15,331	27,632
Tasmania	682	1,204	1,204	1,433	2,621
Commonwealth	169,889	193,123	250,060	277,536	387,821

5. **Instruction in Scientific Forestry.**—Several schools have been established in which, while general scientific instruction is imparted, special attention is paid to forestry. In the classes, theoretical forestry, botany, geology, physics, land surveying, etc., are taught; while in outside work trainees receive practical instruction in the preparation of seed-beds, seed-sowing, propagation, planting out, pruning, the general care and improvement of plantations and natural forests, and the employment of timber to the best advantage. The desire is to give the prospective forester a thorough training in all branches of the work. Courses of lectures are also given at various centres, and, at some of the higher technical schools, members of the forest staffs are afforded opportunities of qualifying in special subjects. Methods of training, etc., are not uniform in the various States, and one of the prime objects of a Conference held in 1916 was the evolution of a system which, while aiming at uniformity, would be sufficiently elastic to provide for special needs in any State.

6. **Forest Congresses.**—Interstate Conferences on Forestry were held in 1911 and 1912, chiefly with a view of securing uniformity of management. An International Forest Congress was held at Paris in June, 1913, when a Professor of South Kensington Imperial College represented the Commonwealth Government. The papers and reports dealt chiefly with the threatened shortage of timber, and the measures necessary to avert the danger. An Imperial Forestry Conference was held in London in the summer of 1920, at which also Australia was represented. Important Interstate Forestry Conferences were held in Adelaide in May, 1916; at Perth in November, 1917; and at Hobart in April, 1920.

§ 3. Commercial Uses of Principal Australian Timbers.

1. **General.**—The uses of the more important of Australian timbers are many and various, and are indicated in previous issues of this work. (See Official Year Book No. 6, pp. 454-6; and Official Year Book No. 10, Section III., § 7 and 8.)

The Commonwealth Government utilises Australian woods for rifle stocks, telephone switch boards, aeroplane parts, etc. Queensland maple (*Flindersia chatawaiana*) is largely used for rifle stocks, and coachwood is available for the same purpose. Australian timber is also seasoned and stored, depots having been established by the Commonwealth Government at Canberra and Newington in New South Wales, and at Maribyrnong in Victoria; by States Governments at the principal centres; and by private enterprise as required.

2. **Uniformity in Nomenclature.**—Unfortunately the vernacular names applied to the gums, ironbarks, etc., in the various States, and even in different parts of the same State, do not always refer to identical timbers. The resulting confusion has not only been productive of loss, but it has, to some extent, prejudicially affected the timber trade. This subject is referred to at some length in the special article, "Australian Eucalyptus Timbers," in Section III., § 7 and 8, in Official Year Book No. 10. At the 1916 Forestry Conference alluded to above, the matter came up for special consideration, and steps were taken to establish a uniform nomenclature.

§ 4. Forestal Industries and Production.

1. **Timber.**—Estimates of the quantity and value of local timber sawn and hewn in each State are given hereunder :—

QUANTITIES OF LOCAL TIMBER SAWN OR HEWN IN EACH STATE OF THE COMMONWEALTH, 1915 TO 1921.

State.	1915.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	sup. feet.	sup. feet.	sup. feet.	sup. feet.	sup. feet.	sup. feet.
New South Wales	115,201,000	125,243,000	126,745,000	131,617,000	155,114,000	156,112,000
Victoria ..	82,589,000	70,038,000	78,984,000	91,540,800	99,142,000	113,215,000
Queensland ..	144,950,000a	121,851,000a	111,663,000a	118,436,000a	144,389,000a	136,005,000a
South Australia ..	2,348,000	3,729,000	3,425,000	5,223,000	6,178,000	5,598,000
Western Australia ..	123,494,000a	100,356,000a	85,218,000a	94,990,000a	131,477,000a	137,984,000a
Tasmania ..	47,890,000a	52,019,000a	44,986,000a	49,814,000a	56,809,000a	63,108,000a
Commonwealth	496,472,000	473,236,000	451,096,000b	491,620,000	593,109,000	611,972,000

(a) Year ended 31st December.

(b) Including Northern Territory, 75,000 sup. feet.

2. **Other Forest Produce.**—(i) *General.* No satisfactory estimates of the total value of forest production are available. Large returns are credited to firewood, but these are subject to a wide range of uncertainty.

(ii) *Eucalyptus Oil.* A considerable quantity of eucalyptus oil is produced each year, chiefly in Victoria, the product being used as a drug, and also in connexion with ore flotation processes. Complete information regarding local production and consumption is not available. Oversea exports amounted in 1916-17 to £60,000, in 1917-18 to £77,000, in 1918-19 to £84,000, in 1919-20 to £92,000, and in 1920-21 to £107,000, the bulk of the product being forwarded to the United Kingdom. Large quantities have also been exported to the United States.

(iii) *Tan Barks.* In addition to the wattle bark, mentioned at the close of this section, a valuable tan bark is obtained from the mallet (*E. occidentalis*) of Western Australia. Its exploitation has, however, been so rapid that the available supply is now comparatively small.

§ 5. Oversea Trade.

1. **Imports.**—The quantity and value of timber imports during the four years 1917-18 to 1920-21 inclusive are shewn according to countries of origin in the following tables. The figures in the first table are exclusive of a few items such as veneers, etc. :—

IMPORTS OF DRESSED TIMBER, COMMONWEALTH, 1917-18 TO 1920-21.

Country of Origin.	Quantity.				Value.			
	1917-18.	1918-19.	1919-20.	1920-21.	1917-18.	1918-19.	1919-20.	1920-21.
	sup. ft.	sup. ft.	sup. ft.	sup. ft.	£	£	£	£
United Kingdom ..	100	20	105,970	4,650	18	3	584	29
New Zealand ..	163,979	9,135	..	..	2,064	206	..	..
Other British Countries ..	40,975	31,564	94,725	109,255	461	358	1,208	4,930
Norway ..	400	..	9,433,921	34,241,593	2	..	201,593	808,562
Sweden ..	..	532,845	4,251,220	12,883,503	..	9,900	87,757	325,864
United States ..	107,323	73,459	66,863	120,808	2,658	2,621	2,793	4,299
Other Foreign Countries ..	10,838	13,294	2,329	389	207	641	109	10
Total ..	323,615	660,317	13,955,028	47,360,198	5,410	13,729	294,044	1,143,694

The bulk of the imports of dressed timbers normally comes from Norway, Sweden, and the United States. War conditions caused some dislocation of trade during the period covered by the table. Practically the whole of this timber consists of softwoods—deal and pine—used for lining, weatherboards, flooring, shelving, doors, box-making, etc.

IMPORTS OF UNDRESSED TIMBER, INCLUDING LOGS, COMMONWEALTH,
1917-18 TO 1920-21.

Country of Origin.	Quantity.				Value.			
	1917-18.	1918-19.	1919-20.	1920-21.	1917-18.	1918-19.	1919-20.	1920-21.
	sup. ft.	sup. ft.	sup. ft.	sup. ft.	£	£	£	£
United Kingdom	6,144	800	33,861	205,546	116	3	1,803	4,929
Canada	11,737,562	2,204,774	5,766,398	12,861,386	74,959	22,250	90,882	181,072
India	109,486	89,436	129,395	639,964	5,113	3,687	8,022	62,094
New Zealand	69,305,936	59,027,839	56,470,627	61,548,649	571,599	632,613	673,922	879,960
Straits Settlements	254,325	201,325	817,675	400,625	2,211	1,376	8,147	5,890
Other British Countries	275,623	186,607	802,860	1,234,127	1,339	1,382	8,504	10,452
Japan	1,988,267	2,927,688	6,362,400	5,727,148	40,843	68,377	188,622	210,152
Java	7,495	13,399	578,538	(a) 1,925,464	84	173	6,436	(a) 28,337
Norway	..	10,140	44,600	117,142	..	90	836	2,390
Sweden	..	..	165,934	2,114,849	..	..	2,609	52,507
United States	85,877,463	79,013,943	70,976,919	104,085,707	637,960	1,023,391	1,069,341	2,048,517
Other Foreign Countries	94,774	106,666	1,059,665	2,097,200	1,331	3,397	19,781	37,845
Total	169,657,075	143,782,637	143,208,872	192,457,777	1,335,555	1,756,739	2,078,906	3,524,145

(a) Including other Dutch East Indian possessions.

By far the larger proportion of the undressed timber imports also consists of softwoods such as yellow pine, redwood, and oregon from the United States and Canada; kauri, rimu, and white pine from New Zealand; pine from Japan, and (prior to the war) red deals from Russia, Norway, and Sweden. Amongst the hardwoods imported the principal are oak from the United States and Japan, and teak from India.

2. Exports.—The quantity and value of undressed (sawn) timber exported from 1916-17 to 1920-21 are given below, the countries of destination being also shewn:—

EXPORTS OF UNDRESSED TIMBER (SAWN), COMMONWEALTH,
1916-17 TO 1920-21.

Country to which Exported.	Quantity. (a)					Value.				
	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	sup. ft.	sup. ft.	sup. ft.	sup. ft.	sup. ft.	£	£	£	£	£
United Kingdom	1,000	1,000	1,000	1,000	1,000	10,118	428	4,458	4,612	181,451
Canada	1,478	27	536	374	18,078	3,796	6,504	2,364	1,405	912
Union of S. Africa	260	316	103	59	32	83,598	43,012	75,314	234,589	353,424
Ceylon	11,944	6,154	10,925	32,426	34,935	36,041	..	..	10,448	3,316
Egypt	5,444	..	..	1,567	340	..	..	..	14,472	55,800
Fiji	..	..	..	2,171	6,890	..	..	..	11,178	17,202
Hong Kong	839	916	418	739	1,010	8,415	12,614	4,338	11,178	17,202
India	..	..	188	272	395	..	8	2,197	2,866	4,954
Mauritius	..	..	100	467	10,220	..	..	650	3,500	88,650
New Zealand	..	277	..	458	1,834	..	2,310	..	3,342	22,014
Papua	12,666	5,993	5,374	12,263	24,824	109,323	63,802	80,498	168,329	452,690
Straits Settlements	277	132	98	140	181	5,278	1,720	1,861	3,155	10,590
Territory of New Guinea	2	59	20	..	..	34	899	135	..	..
Other British Countries	188	99	41	226	158	2,034	1,378	868	4,209	4,227
Belgium	510	310	271	664	896	6,211	3,912	4,157	13,728	20,684
China	..	..	..	1	2,507	..	..	..	27	24,897
Japan	..	..	..	760	3,420	..	..	..	5,996	39,682
Marshall Islands	70	704	105	355	466	702	11,827	2,276	6,021	6,210
New Caledonia	2	4	16	..	..	22	53	250	2	..
Other Pacific Islands (Foreign)	25	298	92	155	54	300	3,710	1,502	3,081	1,572
U.S. of America	192	154	202	84	139	2,427	1,999	2,992	1,684	3,648
Other Foreign Countries	1,433	4,050	2,189	275	668	21,354	75,674	41,867	6,588	17,466
Total	2	15	72	1	382	83	223	1,503	13	6,126
Total	85,332	19,509	20,750	53,457	107,519	289,738	230,073	227,230	500,148	1,315,515

(a) Exclusive of timber not measured in super. feet.

As the table shews, the bulk of the exports of undressed timber was consigned to South Africa, New Zealand, and (except for latest years) the United Kingdom, and consisted of Australian hardwoods, which have earned an excellent reputation for such purposes as railway sleepers, harbour works, wood paving, etc. There was a notable increase in the quantity supplied to the United States in the later war years.

The quantities of timber imported and exported during the last five years are given in the next table:—

QUANTITIES OF TIMBER IMPORTED INTO AND EXPORTED FROM THE
COMMONWEALTH, 1916-17 TO 1920-21.

Description.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
IMPORTS.					
Veneers .. sup. feet	499,514	459,307	509,855	592,434	1,511,566
Dressed .. "	8,014,939	536,124	1,139,401	14,211,023	51,154,260
Undressed .. "	195,830,413	169,378,755	143,754,858	140,516,943	188,388,808
Logs .. "	774,316	278,320	27,779	2,691,929	4,068,969
Pickets .. No.	611,399	688,822	261,886	915,582	775,041
Shingles .. "	2,083,408	2,391,326	567,200	606,186	2,732,953
Staves—					
Dressed, etc. .. "	12,764	8,964	2,752	1,035	..
Undressed .. "	152,283	575,300	666,036	1,527,357	643,887
Laths for blinds .. "	(a)	(a)	..	(a)	(a)
" other .. "	11,419,145	17,568,419	6,610,148	8,950,913	14,212,313
Spokes .. "	358,438	408,281	227,925	285,869	716,786
Doors .. "	300	666	78	371	1,611
Architraves, mouldings, etc. .. lin. feet	..	..	..	2,150	(a)
Wood pulp .. "	(a)	(a)	(a)	(a)	(a)
Other .. "	(a)	(a)	(a)	(a)	(a)
EXPORTS.					
Veneers .. sup. feet	..	..	..	..	..
Dressed .. sup. feet	322,058	297,341	251,041	720,635	4,592,543
Undressed .. "	35,332,403	19,807,434	20,750,023	53,456,799	107,519,387
Logs .. "	197,721	298,460	184,398	190,685	698,135
Palings .. No.	603,569	121,506	60,365	120,560	434,652
Pickets .. "	..	..	..	..	4,100
Shingles .. "	..	100,000	7,090	152,675	360,150
Staves—					
Dressed, etc. .. "	..	1,230	..	..	6,000
Undressed .. "	..	..	..	..	..
Laths for blinds .. "	(a)	(a)	(a)	(a)	(a)
" other .. "	63,000	92,160	2,111	280,420	..
Spokes, rims, felloes .. "	(a)	(a)	(a)	(a)	(a)
Doors .. "	(a)	(a)	(a)	(a)	(a)
Architraves, mouldings, etc. .. lin. feet	40,768	48,265	80,186	149,465	867,713
Wood pulp .. "	..	..	..	..	..
Other .. "	..	..	..	..	..

(a) Quantity not available.

QUANTITIES OF TIMBER IMPORTED AND EXPORTED, ETC.—*continued.*

Description.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
EXCESS OF IMPORTS OVER EXPORTS.					
Veneers .. sup. feet	499,514	459,307	509,855	592,434	1,511,566
Dressed .. "	7,692,881	238,783	888,360	13,490,388	46,561,717
Undressed .. "	160,498,010	149,571,321	123,004,835	87,060,144	80,869,421
Logs .. "	576,595	- 20,140	- 156,619	2,501,244	3,370,834
Palings .. No.	- 603,569	- 121,506	- 60,365	- 120,560	- 434,652
Pickets .. "	611,399	688,822	261,886	915,582	770,941
Shingles .. "	2,083,408	2,291,326	560,110	453,511	2,372,803
Staves—					
Dressed, etc. .. "	12,764	7,734	2,752	1,035	- 6,000
Undressed .. "	152,283	575,300	666,036	1,527,357	643,887
Laths for blinds .. "	(a)	(a)	(a)	(a)	(a)
" other .. "	11,356,145	17,476,259	6,608,037	8,670,493	14,212,313
Spokes, rims, felloes .. "	(a)	(a)	(a)	(a)	(a)
Doors .. "	(a)	(a)	(a)	(a)	(a)
Architraves, mouldings, etc. .. lin. feet	- 40,768	- 48,265	- 80,186	- 147,315	- 867,713
Wood pulp .. "	(a)	(a)	(a)	(a)	(a)
Other .. "	(a)	(a)	(a)	(a)	(a)

(a) Quantity not available. NOTE. The minus sign (—) signifies excess of exports over imports.

The values of the timber imports and exports during the last quinquennium are shewn hereunder:—

VALUE OF TIMBER IMPORTED INTO AND EXPORTED FROM THE COMMONWEALTH, 1916-17 TO 1920-21.

Description.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
IMPORTS.					
	£	£	£	£	£
Veneers	25,670	21,613	33,540	39,314	115,516
Dressed	74,477	6,672	21,309	296,480	1,209,286
Undressed	1,346,497	1,333,382	1,754,592	2,027,551	3,468,448
Logs	5,639	2,173	2,147	51,355	55,697
Palings .. ..	..	..	..	..	..
Pickets	2,174	4,040	3,037	10,626	10,686
Shingles	3,132	4,569	1,476	2,933	11,573
Staves—					
Dressed, etc. ..	337	260	53	21	..
Undressed, ..	3,538	3,516	6,836	19,296	24,532
Laths for blinds ..	..	..	..	2	8
" other	9,230	20,729	10,119	18,142	47,000
Spokes	6,001	6,125	4,234	9,004	36,546
Doors	103	201	256	101	1,159
Architraves, mouldings, etc. .. ..	..	..	..	6	..
Wood pulp	53,459	39,266	49,993	57,253	226,373
Other	2,030	1,246	938	1,880	1,373
Total value ..	1,532,287	1,443,792	1,888,530	2,533,964	5,208,197

VALUE OF TIMBER IMPORTED AND EXPORTED, ETC.—*continued.*

Description.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
EXPORTS.					
	£	£	£	£	£
Veneers .. ..	..	..	..	..	..
Dressed	4,804	5,314	6,659	19,234	61,299
Undressed	289,738	230,073	227,230	500,148	1,315,515
Logs	1,648	2,345	1,159	2,733	9,568
Palings	4,176	889	717	1,071	6,098
Pickets .. ..	..	..	..	..	87
Shingles .. ..	..	139	41	265	1,008
Staves—					
Dressed, etc. ..	..	127	..	..	355
Undressed .. ..	..	..	..	..	..
Laths for blinds ..	29	..	92	241	652
" other	147	308	12	817	..
Spokes, rims, felloes ..	4,333	5,259	3,562	6,189	15,470
Doors	354	..	307	1,358	2,419
Architraves, mouldings, etc.	164	257	608	1,962	9,286
Wood pulp .. ..	..	..	..	..	..
Other .. ..	..	..	..	..	..
Total value	305,393	244,711	240,387	534,018	1,421,757

EXCESS OF IMPORTS OVER EXPORTS.

Veneers	25,670	21,613	33,540	39,314	115,516
Dressed	69,673	1,358	14,650	277,246	1,147,987
Undressed	1,056,759	1,103,309	1,527,362	1,527,403	2,152,933
Logs	3,991	-172	988	48,622	46,129
Palings	-4,176	-889	-717	-1,071	-6,098
Pickets	2,174	4,040	3,037	10,626	10,599
Shingles	3,132	4,430	1,435	2,668	10,565
Staves—					
Dressed, etc. ..	337	133	53	21	-355
Undressed	3,538	3,516	6,836	19,296	24,532
Laths for blinds ..	-29	..	-92	-239	-644
" other	9,083	20,421	10,107	17,325	47,000
Spokes, rims, felloes ..	1,668	866	672	2,815	21,076
Doors	-251	201	-51	-1,257	-1,260
Architraves, mouldings, etc.	-164	-257	-608	-1,956	-9,286
Wood pulp	53,459	39,266	49,993	57,253	226,373
Other	2,030	1,246	938	1,880	1,373
Total value	1,226,894	1,199,081	1,648,143	1,999,946	3,786,440

NOTE. The minus sign (—) signifies excess of exports over imports.

A fair amount of sandalwood is exported each year, principally from Western Australia, and to a smaller extent from Queensland. The largest proportion of this product is consigned to Hong Kong, China, and the Straits Settlements.

EXPORTS OF SANDALWOOD, 1916-17 TO 1920-21.

Country to which Exported.	Quantity.					Value.				
	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	cwt.	cwt.	cwt.	cwt.	cwt.	£	£	£	£	£
Hong Kong ..	130,314	102,325	124,500	187,260	129,900	71,460	76,093	92,518	174,659	111,730
Straits Settlements	10,308	19,576	33,980	81,620	35,860	6,504	12,236	22,063	71,522	35,191
Other British Possessions ..	7,100	2,000	2,440	2,360	8,500	4,429	1,275	1,588	2,245	7,846
China ..	9,660	14,785	29,480	26,000	48,380	5,554	9,857	18,767	18,307	39,798
Other Foreign Countries ..	120	1,842	5,420	700	140	102	4,481	4,009	626	186
Total ..	157,502	140,528	195,820	297,940	222,780	88,049	103,942	138,945	267,359	194,701

Tanning bark figures both as an export and import in the Commonwealth trade returns, as the following tables shew:—

EXPORTS OF TANNING BARK, 1916-17 TO 1920-21.

Country to which Exported.	Quantity.					Value.				
	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	cwt.	cwt.	cwt.	cwt.	cwt.	£	£	£	£	£
United Kingdom	6,797	..	1,220	3,700	360	3,103	..	860	2,561	202
New Zealand	41,098	95,192	27,320	60,900	56,360	20,703	45,007	13,801	37,616	39,356
Other British Possessions	205	208	..	..	100	107	72	..	..	88
Foreign Countries	11,199	1,745	60	7,780	8,400	5,001	611	14	4,050	7,084
Total	59,290	97,145	28,600	72,380	65,220	28,914	45,690	14,675	44,227	46,730

Prior to the war there was a fairly considerable export of tan bark to Germany and also to Belgium. The exports westward have naturally dwindled away, and at the present time New Zealand receives the largest share of the available export, while there is also some trade with Japan, China, and Java. During recent years the largest proportion of the exports consisted of wattle bark from Tasmania, Victoria and New South Wales.

A comparison of the imports and exports of tanning bark during the last five years is given in the next table:—

TANNING BARK IMPORTED INTO AND EXPORTED FROM THE COMMONWEALTH, 1916-17 TO 1920-21.

Particulars.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
QUANTITIES—	cwt.	cwt.	cwt.	cwt.	cwt.
Imports	148,206	71,133	102,480	78,800	48,100
Exports	59,299	97,145	28,600	72,380	65,220
Excess of exports over imports	-88,907	26,012	-73,880	-6,420	17,120
VALUES—	£	£	£	£	£
Imports	51,461	24,711	43,319	33,733	20,002
Exports	28,914	45,690	14,675	44,227	46,730
Excess of exports over imports	-22,547	20,979	-28,644	10,494	26,728

NOTE. The minus sign (—) denotes excess of imports.

The imports consist almost exclusively of wattle bark from the plantations in South Africa. One variety of Australian wattle is found to flourish in the sandy belts near the coast, but it is the *Acacia decurrens*, var. *mollis*, which is chiefly relied upon for the production of wattle bark in the South African plantations. Seed has been tried from New South Wales, Tasmania, and Victoria, but it is stated that most of the seed is obtained from the best wattle bark areas in eastern Tasmania and western Victoria.

Two reasons are given to account for the success of the industry in South Africa. (i) It is found that the treeless, grassy highlands of Natal are specially suitable for wattle culture, and the trees can therefore be grown in rows and economically attended to, while the necessary bark sheds and other appurtenances can be placed in the most advantageous positions. (ii) There is an abundance of cheap and efficient Hindoo labour available for employment on the plantations.

SECTION XI.

FISHERIES AND PISCICULTURE.

§ 1. Commercial Fisheries.

1. **Fish Stocks.**—Australasia possesses an abundant and varied fish fauna, which embraces both tropical and temperate varieties and includes destructive as well as valuable species. In rivers and lakes both indigenous and imported varieties thrive. The latter have been introduced and acclimatised for industrial and sporting purposes by Governments and angling societies. Exploitation of the fishing areas—for some classes of fish for the whole year, for others during the breeding season only, or until a certain size is attained—is, where necessary, expressly forbidden; proclaimed localities are closed against net-fishing, and a minimum size of mesh for nets is fixed. The sea-fishermen in some districts have made regulations in their own interests for the purpose of controlling the market supply, and these they rigorously observe.

2. **Economic Fisheries.**—Although Australia's food fishes are abundant, the development of the industry has been slow. It has been authoritatively stated that the marine fisheries, properly fostered, will develop into an industry of national importance. Local catches of lake and river fishes furnish, in the aggregate, a not inconsiderable amount of food supply.

3. **Distribution of Supplies.**—Present methods of distribution impose serious difficulties on the development of fishing generally, since there is a wide divergence between the price paid by the consumer and the return received by the producer. States and municipalities are interesting themselves in the direction of more economic distribution. Good markets are assured in the chief cities for regular deliveries of fresh fish.

4. **Oyster Fisheries.**—Natural oyster beds, whose ample product is of excellent quality, exist on the foreshores in the shallow waters of inlets and estuaries in several parts of Australia. By husbanding the natural crop, and by judicious transplanting, the oyster output has been very materially augmented, and it is believed that there is a great future for the industry. The areas are leased by the Government to private persons, lengths of foreshore being taken up and profitably exploited. In New South Wales and Queensland particularly, the industry has developed; and small yields have been obtained in South Australia and Victoria.

5. **Pearl-shelling, Bêche-de-Mer, etc.**—(i) *General.* Pearl-shelling is carried on in the tropical waters of Queensland, the Northern Territory, and Western Australia. The pearl oyster inhabits the northern and western coastal waters from Cape York to Shark Bay, a length of shore of over 2,000 miles. The shells are marketed in considerable quantities, and pearls also are obtained in Queensland and Western Australia. The fishing is generally conducted with the aid of diving apparatus, in water varying from 4 to 20 fathoms in depth. In Queensland and the Northern Territory the bêche-de-mer

industry is carried on, and tortoise-shell is obtained on the coasts. Experiments have been made in cultivating the pearl oyster on suitable banks. In October, 1911, a pearl weighing 178 grains, and valued at £3,000, was obtained at Broome. Further details regarding pearl-shelling are given in Official Year Book No. 6, p. 463. Trochus-shell to the value of £23,000, £21,800, £37,886, £30,280, and £41,698 was raised in Queensland during 1916, 1917, 1918, 1919, and 1920 respectively.

(ii) *Royal Commission on Pearl-shelling Industry.* In accordance with the "White Australia" policy, it was originally determined that the employment of Asiatic labour in the pearl-shelling industry should be restricted, and ultimately cease, and it was proposed that after 31st December, 1913, permits to indent Asiatics for the pearling fleet should no longer be issued. In view, however, of the disorganisation of the industry occasioned by the war, the time was extended to the 30th June, 1918, after which date permits to introduce Asiatic labour were to be granted only in cases where the diver and tender of a boat were Europeans. Since the receipt of the Report of the Royal Commission, referred to hereunder, this proviso was, however, revoked. In March, 1912, a Royal Commission to inquire into the pearling industry was appointed by the Commonwealth Government, and after visits to the Queensland and Western Australian waters, various sittings, and the issue of a progress report, presented its final report in 1916. The Commissioners stated that, though it might be practicable, they did not consider it desirable or profitable to attempt by any drastic methods to transfer the industry from Asiatics to Europeans. They further stated that, while the labour now employed is almost entirely Asiatic, they did not consider that the "White Australia" policy would be weakened or imperilled by allowing the industry to continue as at present conducted. At Thursday Island the pearling industry is almost monopolised by Japanese.

§ 2. Fisheries Statistics.

1. *Estimates for the Commonwealth.*—The returns given below have been furnished by the State departments. Estimates and approximations, where shewn, are official. The data do not generally lend themselves to presentation on a uniform scheme, but the principal facts have as far as possible been compiled for the Commonwealth.

GENERAL FISHERIES (EXCLUDING EDIBLE OYSTERS, PEARL-SHELL, AND BÂCHE-DE-MER), COMMONWEALTH, 1920.

State or Territory.	No. of Boats Engaged.	Value of Boats and Equip- ment.	No. of Men Em- ployed.	Total Take of—		Value of Take.	
				Fish.	Spiny Lobster (Crayfish).	Fish.	Spiny Lobster (Crayfish).
	No.	£	No.	cwt.	doz.	£	£
New South Wales ..	935	64,461	9,388	5210,319	6,396	5374,443	222,776
Victoria (e) ..	873	110,010	1,380	105,038	18,690	148,250	16,330
Queensland ..	633	40,187	1,226	47,200	..	89,517	..
South Australia (e) ..	850	30,000	910	(a)	(a)	250,000	(f)
Western Australia ..	232	21,856	514	23,093	8,598	64,659	4,299
Tasmania (d) ..	99	8,710	213	doz. 107,846	4,310	12,586	1,480
Northern Territory (e)	2	560	3	45	..	113	..
Commonwealth (d)	3,624	275,784	7,634	(a)	(a)	939,568	44,885

(a) Not available. (b) Including 55,180 cwt. fish, valued at £115,878, obtained by State trawlers and private fishermen. (c) Including £13,182, the value of 4,575 cwt. prawns and 656 baskets crabs. (d) Incomplete. (e) Year ended 30th June, 1921. (f) Included with fish. (g) Number of licensed fishermen.

The available returns from the Commonwealth oyster fisheries appear in the next table. Edible oysters are not found in Western Australia. There is no information available in regard to the small amount of local oysters obtained in Tasmania.

EDIBLE OYSTER FISHERIES, COMMONWEALTH (a), 1920.

State or Territory.	Number of Boats Engaged.	Value of Boats and Equipment.	Number of Men Employed.	Number of Leases.	Oysters Taken.	
					Quantity.	Value.
	No.	£	No.	No.	cwt.	£
New South Wales ..	439	15,296	421	3,642	43,563	75,063
Victoria(b) ..	(c)	(c)	(c)	19	3,471	3,044
Queensland ..	93	12,181	118	395	25,733	30,587
South Australia(c) ..	..	..	..	..	..	..
Commonwealth ..	..	..	..	4,056d	72,767d	108,694d

(a) Practically no oyster fisheries in Western Australia, Tasmania, and Northern Territory. (b) Year ended 30th June, 1921. (c) Included with General Fisheries. (d) Exclusive of South Australia.

The pearling industry is carried on in the tropical waters of Queensland, Western Australia, and the Northern Territory. During the last few years the return from the pearling industry has been adversely affected by labour conditions, coupled with the restriction in the market consequent on the war. Some of the pearling fleets have transferred their operations to Dutch waters. Bêche-de-mer is obtained in Queensland and the Northern Territory, the product being exported to China.

PEARL, PEARL-SHELL, AND BÊCHE-DE-MER FISHERIES, COMMONWEALTH (a), 1920.

State or Territory.	Number of Boats Engaged.	Value of Boats and Equipment.	Number of Men Employed.	Quantity of Pearl-shell obtained.	Value of Pearl-shell obtained.	Value of Pearls obtained. (d)	Value of Bêche-de-mer obtained.	Value of Trochus-shell obtained.
	No.	£	No.	Tons.	£	£	£	£
Queensland (b) ..	160	80,000	1,189	440	66,000	80	65,557	161
Western Australia ..	341	176,160	2,504	1,664	268,417	68,530	..	..
Northern Territory(c)	14	2,830	45	22	3,500	..	5,341	141
Commonwealth ..	515	258,990	3,738	2,126	337,917	68,610	70,898	302

(a) No pearl-shelling industry in New South Wales, Victoria, South Australia, and Tasmania. (b) Also trochus-shell to the value of £41,698. (c) Year ended 30th June, 1921.

For obvious reasons the returns in regard to the value of pearls obtained can be regarded as rough approximations only. The trochus-shell raised in Queensland is used principally in the manufacture of "pearl" buttons. The next table gives the revenue from fisheries in each State :—

PUBLIC REVENUE FROM FISHERIES, COMMONWEALTH, 1920.

State or Territory.	Licenses.	Leases.	Fines and Forfeitures.	Other Sources.	Total.
	£	£	£	£	£
New South Wales ..	1,422	9,037	204	330	10,993
Victoria(a) ..	639	29	120	11	799
Queensland ..	2,626	3,388	26	..	6,040
South Australia(a) ..	1,406	..	..	..	1,406
Western Australia ..	5,002	978	170	..	6,150
Tasmania ..	635	..	16	183	834
Northern Territory(a) ..	30	..	..	..	30
Commonwealth ..	11,760	13,432	536	524	26,252

(a) Year ended 30th June, 1921.

A summary of the main items of information available in regard to General and Oyster Fisheries in the Commonwealth is given herunder for the five years 1916 to 1920 :—

GENERAL AND OYSTER FISHERIES, COMMONWEALTH, 1916 TO 1920.

Particulars.	1916.	1917.	1918.	1919.	1920.
General Fisheries—					
No. of boats engaged ..	3,581	3,401 (b)	3,287 (b)	3,838	3,624
No. of men employed ..	7,102	6,773 (b)	6,515 (b)	7,774	7,634
Fish obtained—					
Quantity .. cwt.	469,574 (b)	463,839 (b)	490,612 (b)	377,743(c)	385,695 (c)
Value .. £	742,535 (b)	695,718 (b)	755,059 (b)	877,120	939,568
LoBSTERS obtained—Value £	33,582 (b)	28,603 (b)	32,250 (b)	26,896(d)	44,885 (d)
Edible Oyster Fisheries(a)—					
No. of boats engaged ..	547	577	550	503(e)	532 (e)
No. of men employed ..	618	640	598	492(e)	539 (e)
Oysters obtained—					
Quantity .. cwt.	85,740	74,313	78,668	78,430(d)	72,767 (d)
Value .. £	94,884	86,550	92,261	100,910(d)	108,694 (d)
Public Revenue from Fisheries—					
Licenses .. £	8,673	9,080	8,903	10,959	11,760
Leases .. £	14,065	12,420	12,646	11,969	13,432
Fines and forfeitures .. £	764	358	438	523	536
Other sources .. £	255	999	575	3,919	524
Total Revenue .. £	23,757	22,857	22,562	27,370	26,252

(a) There are practically no oyster fisheries in Western Australia, Tasmania, and Northern Territory.
 (b) Exclusive of Tasmania. (c) Exclusive of South Australia and Tasmania. (d) Exclusive of South Australia. (e) Exclusive of Victoria and South Australia.

The following table gives in summarised form for the years 1916 to 1920 the details available in regard to pearling and bêche-de-mer fishery for the States where these industries are carried on, i.e., Queensland, Western Australia, and the Northern Territory. For obvious reasons, figures regarding value of pearls obtained can be taken as rough approximations only.

PEARL, PEARL-SHELL, AND BÊCHE-DE-MER FISHERIES, COMMONWEALTH, 1916 TO 1920.

Particulars.	1916.	1917.	1918.	1919.	1920.
No. of boats engaged ..	429	471	401	471	515
No. of men employed ..	3,336	3,615	2,935	3,453	3,738
Pearl-shell obtained—					
Quantity .. tons	1,538	2,192	1,616	2,300	2,126
Value .. £	229,255	264,295	224,115	387,034(b)	337,917
Pearls obtained(a)—					
Value .. £	27,190	39,333	63,487	74,212(c)	68,610 (b)
Bêche-de-mer obtained—					
Quantity .. tons	513	624	468	308	..
Value .. £	30,222	42,064	48,933	42,721	70,898
Tortoise-shell obtained—					
Quantity .. lbs.	982	942	695	172(c)	..
Value .. £	262	378	350	96(c)	302
Trochus-shell obtained—					
Value .. £	23,000	21,800	37,886	30,280	41,698

(a) Incomplete; but as returned.

(b) Incomplete.

§ 3. Oversea Trade in Fish.

The development of the fishing industry in Australia leaves much to be desired, as is evident from the fact that the import of preserved fish into the Commonwealth is very large. The figures for the imports for the last five years were as follows :—

IMPORTS OF FISH, COMMONWEALTH, 1916-17 TO 1920-21.

Classification.		1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Fresh (oysters) ..	{ cwt.	3,059	1,583	2,321	520	2,092
	{ £	2,157	1,098	1,617	762	2,708
Fresh, or preserved	{ cwt.	18,363	11,080	5,383	9,444	17,558
by cold process	{ £	48,191	26,306	15,144	39,796	81,126
Potted ..	{ cwt.	(a)	(a)	(a)	(a)	(a)
	{ £	44,268	1,300	10,075	97,430	64,310
Preserved in tins	{ cwt.	174,145	148,421	62,426	148,684	103,505
	{ £	715,741	788,728	345,918	989,742	649,610
Smoked, dried, and	{ cwt.	10,015	7,320	2,313	6,106	10,179
n.e.i.	{ £	37,239	35,602	15,863	38,298	52,774
Total ..	{ cwt. (b)	205,582	168,404	72,443	164,754	133,334
	{ £	847,596	853,034	388,617	1,165,938	850,528

(a) Not available. (b) Exclusive of potted fish.

Tinned fish constitutes by far the largest proportion of the imports, most of it consisting of salmon from the United States, Canada, Japan, and Alaska. The potted fish comes chiefly from the United Kingdom. New Zealand supplies the largest proportion of the fresh fish, the bulk of the remainder coming from the United Kingdom and Canada. The small import of oysters consists entirely of New Zealand produce.

The exports of local fish produce for the five years 1916-17 to 1920-21 are given hereunder :—

EXPORTS OF FISH (AUSTRALIAN PRODUCE), COMMONWEALTH,
1916-17 TO 1920-21.

Classification.		1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Fish, fresh, smoked, or	{ cwt.	764	983	530	790	10,193
preserved by cold	{ £	3,089	4,048	2,591	6,017	86,474
process						
Preserved, in tins,	{ cwt.	12,222	13,413	7,072	9,259	102
dried, salted, etc.	{ £	39,839	57,254	45,342	66,255	195
Total ..	{ cwt.	12,986	14,396	7,602	10,049	10,295
	{ £	42,928	61,302	47,933	72,272	86,669

The quantity of fresh fish exported from the Commonwealth is trifling, and the amount of £86,474 shewn in the table above consists chiefly of cured bêche-de-mer exported to Hong Kong from the Northern Territory.

The exports of pearl, tortoise, and trochus-shell, of Australian origin, are given hereunder for the five years 1916-17 to 1920-21 :—

EXPORTS OF PEARL, TORTOISE, AND TROCHUS-SHELL, COMMONWEALTH,
1916-17 TO 1920-21.

Article.		1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Pearl-shell ..	{ cwt.	69,500	59,598	49,300	45,040	31,480
	{ £	363,669	347,964	316,154	462,152	319,143
Tortoise-shell ..	{ lbs.	1,283	1,157	239	1,542	2,922
	{ £	802	483	138	1,011	1,864
Trochus shell ..	{ cwt.	..	..	..	26,000	11,900
	{ £	..	..	..	105,894	37,602

Most of the pearl-shell exported during 1920-21 was consigned to the United States and the United Kingdom, values being £100,087 and £217,853 respectively. A small export was also made to Japan.

§ 4. Development of the Fishing Industry.

1. **Transport and Marketing.**—Up to the present the question of the adequate transport and marketing of the proved supplies of fish has not been satisfactorily dealt with in all the States. In New South Wales, as shewn in § 6 hereinafter, the matter of exploiting and marketing trawlable fish has been undertaken by the State Government, which has also taken steps to improve the conditions under which the ordinary coastal fishing is carried on. In Queensland, also, State trawling was developed in 1919, and some good trawling bottoms have been located and charted between Cape Moreton and Caloundra.

2. **Experiment and Culture.**—In many respects the fishing industry is capable of modification and development. Although some valuable work has been done by the State Governments in the way of experiment and culture, a uniform policy of development for Australia is desirable, and recommendations have been made that the Fisheries Departments of the various States should co-operate with the Federal Government with a view to increasing the productiveness of the Commonwealth waters; and that uniform fisheries laws should be adopted by adjacent States.

All live fish imported into Australia are examined on shipboard in order to prevent the importation of undesirable fish.

With the object of ascertaining something of the movements of oceanic fishes, as well as of those estuarine fishes which make periodical oceanic migrations, reports are furnished regarding the various kinds of fishes, etc., and their movements along the coast.

Fuller details regarding the activities of the States in fish-culture are given in Official Year Book No. 6, pp. 471-2.

By arrangement with the Commonwealth Fisheries Department, members of the staff of the Australian Museum, Sydney, accompanied the F.I.S. *Endeavour* on various cruises. Specimens were collected, mounted for scientific purposes, and distributed to other Australian Museums, a considerable number being put aside for the Commonwealth Fishery Museum.

3. **Consumption of Fish.**—Despite the circumstance that numerous varieties of valuable food fishes abound in the coastal waters of Australia, while the freshwater rivers and lakes yield abundant supplies of natural and acclimatised species, the fishing industry has not developed to the extent that might reasonably be expected. It has been said that the Australians are not an "ichthyophagous race." The annual consumption of fish per head of population in Great Britain is 42 lbs.; in Australia it has been estimated at 10 lbs. The comparatively heavy import of dried and preserved fish would appear to indicate that there is great scope for the development of the industry, which now seems to be ill-managed, the price to the consumer being high, while the fisherman's gain is uncertain, and the system of distribution lacks method. Considerable improvement has, however, been effected in recent years, particularly in New South Wales (*vide* § 6 herein).

§ 5. The Commonwealth Department of Fisheries.

In 1907 the Commonwealth Government decided to demonstrate what might be attained commercially by the application of modern methods. A Federal Investigation Ship, the *Endeavour*, was constructed specially for the work, and a Director of Fisheries was appointed. Experimental cruises were undertaken, which shewed that the Commonwealth possesses an asset of considerable value in her sea fisheries. The *Endeavour* was unfortunately lost at sea, with all on board, at the end of 1914, and has not been replaced. A description of the trawling grounds discovered, and the depth of the ocean to the east of Australia and a list of the publications of the Department are given in pp. 333 to 335 of Year Book No. 14.

§ 6. The State Trawling Industry—New South Wales.

The State Trawling Industry was established in 1915, and fishing operations are conducted with seven steel steam trawlers. The catches are landed at Sydney and Newcastle, and the fish is handled by means of retail shops, of which there are fourteen in the Metropolitan area, one in Newcastle, and five in country towns. During the year ended 30th June, 1920, the State trawlers landed over 2,800 tons of fish, valued at £117,696.

§ 7. Fish Preserving.

Bounties were provided for ten years by the Federal Government for fish preserving, the rate payable being $\frac{1}{2}$ d. per lb. The amounts paid were £27 in 1907-8; £1,727 in 1908-9; £311 in 1909-10; £115 in 1910-11; £168 in 1911-12; £103 in 1912-13; £80 in 1913-14; £156 in 1914-15; £106 in 1915-16; £177 in 1916-17. In 1917-18, £35 was paid in satisfaction of a claim made in the preceding year. Up to the present but little development has taken place, the establishments which claimed bounty for fish preserving numbering only one in 1917-18, as compared with five in 1916-17, two in 1915-16, and five in 1914-15. No bounties were paid in 1918-19 and subsequent years.

SECTION XII.

MINES AND MINING.

§ 1. The Mineral Wealth of Australia.

1. **Place of Mining in Australian Development.**—The value of production from the mineral industry is now considerably less than that returned by the agricultural or the pastoral industry, nevertheless it was the discovery of gold in payable quantities that first attracted population to Australia, and thus laid the foundation of its nationhood. Prior to 1851, the year when Hargraves' memorable discovery was made, coal and copper had both been mined to some extent, and the existence of deposits of other minerals, including gold, had been proved. But it was the news of the sensational finds of the precious metal in 1851 and the year immediately following that brought about a constant stream of immigration, and caused an increase in population from 221,000 at the end of 1841 to upwards of 1,168,000 at the end of 1861.

2. **Extent of Mineral Wealth.**—The extent of the total mineral wealth of Australia cannot yet be regarded as completely ascertained, as large areas of country still await systematic prospecting. The presence of considerable deposits of valuable minerals has long been known. Thus, coal was discovered in 1797, and a shipload was exported to Bengal in 1799, silver was discovered by Count Strzlecki as early as 1839, and was worked as early as 1864; copper mining dates back to 1844; lead to about 1848; iron to about 1850; while the discovery of gold in payable quantities dates back to 1851. Cobalt, nickel, manganese, chromium, tungsten, molybdenum, mercury, antimony, bismuth, zinc, radio-active ores, etc., have all been found, some in fairly large quantities.

Among the more valuable non-metalliferous substances may be mentioned coke, kerosene shale, graphite, alunite, asbestos, diatomaceous earth, clays, ochres, etc.; in building stones: sandstones, syenites, granites, basalts, augite-andesite, porphyries, serpentines, slates, limestones, and marbles; in precious stones: diamonds, emeralds, rubies, sapphires, amethysts, precious opal, turquoise, topazes, garnets, chrysolites, cairngorm, agates, etc. In general it may be said that the variety of Australian mineral wealth is very great.

3. **Quantity and Value of Production during 1920.**—The value of production from the mineral industry in 1920 shewed an increase of £2,732,000 over that for the preceding year. All States participated in this increase with the exception of Western Australia, where there was a falling off amounting to £82,000. In New South Wales and Queensland the increases amounted to £983,000 and £893,000 respectively. Next came South Australia with £376,000, Victoria £277,000, Tasmania £119,000, and Northern Territory £8,000. In New South Wales the increase was chiefly in coal, but there were decreases in gold, copper, silver, lead, and zinc. Victoria shewed increases in gold, coal, and diatomaceous earth. Queensland recorded increases in copper, tin, and silver-lead, but these were to some extent offset by reductions in gold, wolfram, molybdenite, and bismuth. For South Australia there were improved returns from iron ore, copper, salt, and phosphate. Although increases in copper and coal were recorded in Western Australia, these were more than counterbalanced by a falling off in gold, silver, and tin, the lessened yield in the case of gold amounting to £273,000. Tasmania shewed increases in osmiridium, lead, silver, copper, and coal.

The table hereunder and the succeeding one shew respectively the quantity of the various minerals produced during 1920 in each State, and the values apportioned thereto in the form in which the items were reported to the Mines Departments. The quantities and values given represent the amounts which the Departments consider may fairly be taken as accruing to the mineral industry as such. Thus, the item pig iron in New South Wales represents metal produced from locally-raised ore only and so reported to the Mines Department. South Australia, as the table shews,

receives credit for ironstone in the crude stage, but the quantity and value of the pig iron produced therefrom in New South Wales cannot be taken as a product of the New South Wales mineral industry. Similarly lead, silver-lead, and zinc are credited in the form reported to the State of origin—chiefly New South Wales—although the actual metal extraction is carried out to a large extent elsewhere. Information in regard to the quantity of metal extracted at the various smelting and refining works in the Commonwealth, together with that contained (estimated) in the ores, concentrates, etc., exported or sold for export, is given in §18 hereinafter.

QUANTITIES OF PRINCIPAL MINERALS PRODUCED, COMMONWEALTH, 1920.

Minerals.	Unit.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T. (d)
Alunite ..	ton	634	..	..	20	..	..	..
Antimony ore ..	..	200	961	..	..	3	..	..
Asbestos ..	..	664	..	..	5	156	..	..
Bismuth ..	cwt.	1,520	..	(a) 1,000	..	..	2	..
Brown coal ..	ton	..	162,682	..	..	..	..	..
Chromite ..	..	1,460	..	158	..	..	..	..
Coal ..	..	10,715,999	442,241	1,109,913	..	462,021	75,429	..
Coke ..	..	567,569	..	..	..	..	..	..
Copper (ingot and matte) ..	..	1,290	..	15,897	4,339	137	4,792	..
Copper ore ..	..	..	..	(b)	..	1,511	..	67
Diatomaceous earth ..	..	384	1,000	..	..	..	..	..
Gold ..	fine oz.	48,908	152,792	115,229	1,697	617,843	6,246	939
Gypsum ..	ton	..	3,393	..	40,192	..	..	..
Iron (pig) (e) ..	..	86,096	..	..	..	..	..	..
Iron oxide ..	..	1,574	..	..	..	1	..	..
Ironstone ..	..	2,881	..	19,709	413,038	..	..	..
Kaolin ..	..	2,788	2,130	..	693	..	..	..
Lead ..	..	413	..	1,709	..	1,930	3,856	..
Lead and silver ore, concentrates, etc.	..	8,890	..	..	82	3,427	..	17
Limestone flux ..	..	80,145	..	105,068	30,508	..	..	..
Magnesite ..	..	6,474	151	..	185	..	..	..
Manganese ore ..	..	2,531	..	15	514	..	..	..
Molybdenite ..	cwt.	800	965	579	..	10	..	..
Phosphate ..	ton	154	4,222	..	8,753	..	..	..
Platinum ..	oz.	796	..	..	..	..	..	..
Pyritic ore ..	ton	..	..	..	..	6,020	4,440	..
Salt ..	..	..	(c)	..	70,871	..	..	..
Scheelite ..	..	21	..	2	..	2	105	..
Shale (oil) ..	..	21,004	..	..	..	..	140	..
Silver ..	fine oz.	158,934	6,231	274,235	1,005	130,692	623,359	..
Tin and tin ore ..	ton	2,486	84½	1,486	..	243	1,310	180
Wolfram ..	..	14	7½	81	..	..	71	270
Zinc concentrates ..	..	71,043	..	..	..	..	9	..

(a) Including 931 cwt. bismuth and wolfram. (b) Included with metal. (c) Not available for publication. (d) Year ended 30th June, 1920. (e) Vide letterpress preceding paragraph.

The comparative value of the production of minerals raised in each State during 1920 is given in the following table:—

VALUE OF COMMONWEALTH MINERAL PRODUCTION IN 1920.

Minerals.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T. (c)	C'wealth.
Alunite ..	£ 2,536	£ ..	£ ..	£ 150	£ ..	£ ..	£ ..	£ 2,686
Antimony ore ..	2,505	14,238	..	..	45	..	..	16,788
Asbestos ..	7,404	..	..	90	7,286	..	..	14,780
Bismuth ..	33,886	..	(a) 5,286	..	..	9	..	39,181
Brown coal ..	..	64,180	..	..	..	..	..	64,180
Chromite ..	5,090	..	158	..	..	..	..	5,248
Coal ..	7,723,355	464,739	841,551	..	350,346	64,005	..	9,443,996
Coke ..	844,191	..	..	..	..	..	..	844,191
Copper (ingot and matte) ..	127,978	..	1,551,995	423,601	2,698	528,237	..	2,634,509
Copper ore ..	..	..	(b)	(b)	22,467	..	780	23,247
Diamonds ..	6,282	..	..	..	..	..	..	6,282
Diatomaceous earth ..	923	5,000	..	..	..	..	..	5,923

(a) Including bismuth and wolfram, £14,756. (b) Included with metal. (c) Year ended 30th June, 1920.

VALUE OF COMMONWEALTH MINERAL PRODUCTION IN 1920—*continued*.

Minerals.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T. (c)	C'wealth.
	£	£	£	£	£	£	£	£
Gems (unspecified)	2,041		65,831					67,872
Gold ..	275,109	859,461	648,168	9,546	3,475,392	35,134	5,282	5,308,092
Gypsum ..		1,696		31,604				33,300
Iron (pig) (e)	645,720							645,720
Iron oxide ..	1,247				17			1,264
Ironstone ..	3,726		24,852	478,436				507,014
Kaolin ..	3,201	2,264		1,287				6,752
Lead ..	9,905		65,098		69,136	142,268		286,407
Lead and silver- lead ore, concen- trates, etc.	76,634		(a)	2,420	84,743		290	164,096
Limestone flux ..	30,920		(d) 42,921	9,538				83,379
Magnesite ..	9,891	453		347				10,691
Manganese ore ..	2,008		60	4,626				6,694
Molybdenite ..	8,442	3,616	13,333		5			25,396
Opal ..	23,600		500	24,000				48,100
Phosphate ..	732	4,222		12,309				17,263
Platinum ..	16,672							16,672
Pyritic ore ..					7,276	7,346		14,622
Salt ..		(b)		141,742				141,742
Scheelite ..	3,805		462		395	17,905		22,567
Shale (oil) ..	46,082					172		46,254
Silver ..	36,942	1,714	70,461	228	36,605	166,767		312,715
Tin and tin ore ..	413,794	12,815	252,054		49,449	369,362	27,610	1,125,084
Wolfram ..	2,212	355	14,027			13,626	45,648	75,868
Zinc concentrates	249,456					334		249,790
Unenumerated ..	19,881	382	21,113	10,927	4,516	81,277	482	138,578
Total ..	10,636,170	1,435,135	3,617,870	1,150,849	4,110,376	1,426,442	80,101	22,456,943

(a) Included with metal. (b) Not available for publication. (c) Year ended 30th June, 1920.
 (d) Portion of the limestone raised was used in the manufacture of lime and cement. (e) See
 letterpress § 3.

It may be pointed out in connexion with the figures given in the above table that the totals are exclusive of returns relating to certain commodities, such as stone for building and industrial uses, sand, gravel, brick and pottery clays, lime, cement, and slates, which might rightly be included under the generic term "mineral." Valuations of the production of some of these may be obtained from the reports of the various Mines Departments but in regard to others it is impossible to obtain adequate information. In some instances, moreover, the published information is of little value. By restricting the comparison to items in connexion with which properly comparable information can be obtained for each State, it is believed that a satisfactory estimate of the progress of the mineral industry can be more readily obtained. The items excluded from the total for New South Wales in 1920 consist of—lime, £80,412; marble, £2,315; Portland cement, £719,435, and brick and pottery clays in the "unenumerated" class. In Queensland, arsenic to the value of £16,760 is included under the heading unenumerated. For South Australia the principal items in the unenumerated class are flint pebbles, £1,604; and barytes, £7,362; while this class in Tasmania includes osmiridium to the value of £77,114.

4. Total Production to end of 1920.—In the next table will be found the estimated value of the total mineral production in each State up to the end of 1920. The figures given in this table are also exclusive of the same items referred to in connexion with the preceding table. Thus the total for New South Wales falls short by £7,344,000 of that published by the State Department of Mines, the principal items excluded being cement, £5,376,000; lime, £672,000; and marble, £40,000.

COMMONWEALTH MINERAL PRODUCTION TO END OF 1920.

Minerals.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.(a)	C.wealth.
	£	£	£	£	£	£	£	£
Gold ..	62,979,870	300,877,399	83,945,619	1,594,555	144,835,788	8,793,515	2,272,875	605,299,621
Silver and lead ..	88,012,745	260,178	3,193,536	377,681	1,703,342	6,872,884	62,515	100,489,881
Copper ..	15,256,078	216,656	24,138,588	32,550,723	1,636,042	15,585,355	231,710	89,615,152
Iron ..	3,495,493	15,641	465,808	2,300,790	36,712	52,110		6,366,554
Tin ..	12,342,297	891,583	9,802,419		1,477,556	15,088,739	512,396	40,114,990
Wolfram ..	271,642	11,885	1,061,041	301	1,441	171,617	206,530	1,724,457
Zinc ..	13,444,001			15,993	5,437	36,320		13,501,751
Coal ..	105,867,620	5,167,654	9,621,507		2,674,257	1,012,273		124,343,311
Other ..	12,490,053	660,939	2,149,544	2,078,711	78,915	499,315	28,278	17,985,755
Total ..	314,159,799	308,101,935	134,378,062	38,918,754	152,449,490	48,113,128	3,314,304	999,435,472

(a) To 30th June, 1920.

The "other" minerals in New South Wales include alunite, £193,517; antimony, £343,688; bismuth, £222,928; chrome, £113,301; coke, £5,844,746; diamonds, £140,269; limestone flux, £885,588; molybdenite, £214,007; opal, £1,498,184; scheelite, £192,375; and oil shale, £2,548,495. In the Victorian returns antimony ore was responsible for £549,165. Included in "other" in the Queensland production were opal, £179,695; gems, other, £455,602; bismuth, £308,728; molybdenite, £350,134; and limestone flux, £604,552. The chief items in South Australian "other" minerals were salt, £1,259,039; and limestone flux, £211,086. Considerable values from gypsum and rock phosphates are also included. In the Tasmanian returns limestone flux was responsible for £91,739, and osmiridium for £199,491, while the figures for recent years include values for iron pyrites.

It will be convenient in the succeeding pages to deal first with gold and the various metals, then with non-metallic minerals and precious stones, and finally to furnish some account of the extent of employment in mining generally.

(A) METALLIC MINERALS.

§ 2. Gold.

1. **Discovery of Gold in Various States.**—The discovery of gold in payable quantities was an epoch-making event in Australian history, for, as one writer aptly phrases it, this event "precipitated Australia into nationhood." A more or less detailed account of the finding of gold in the various States appears under this section in Official Year Books Nos. 1 to 4, but considerations of space preclude its repetition in the present issue.

2. **Production of Gold at Various Periods.**—In the following table will be found the value of the gold raised each year in the several States and in the Commonwealth from the dates when payable discoveries were first reported. Owing to defective information in the earlier years the figures fall considerably short of the actual totals, for during the first stages of mining development, large quantities of gold were taken out of Australia by successful diggers, who preferred to keep the amount of their wealth secret. For South Australia the records in the earlier years are somewhat irregular, and this remark applies to some extent also to the returns for Western Australia and Tasmania.

In New South Wales the yield for 1920 was about 17,000 ozs. lower than in 1919, and was the lowest recorded since 1851. In Victoria the yield for 1920 shewed an increase of 17,000 ozs. fine on that for the preceding year. In Queensland the yield in 1920 was about 6,000 ozs. less than in the preceding year. As in the case in other States where there is a diminishing production, the decline is due to the gradual depletion of the mines in the principal fields. The returns for South Australia for 1920 dwindled to about half the output for the previous year. For Western Australia the

figures shew a decrease of over 116,000 ozs. in 1920 as compared with 1919, diminished returns being recorded in the outputs from all the fields except Coolgardie, East Coolgardie, Peak Hill, and Pilbara. For Tasmania there was a decline of over 1,400 ozs.

VALUE OF GOLD RAISED IN AUSTRALIA, 1851 TO 1920.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
1851	468,336	851,596	..	..	..	(b)28,737	..	1,348,669
1852	2,680,946	9,146,140	..	..	..	472,615	..	12,279,701
1853	1,781,172	10,976,392	..	..	..	217,538	..	12,975,102
1854	773,209	8,873,932	..	..	..	65,030	..	9,712,171
1855	654,594	11,277,152	..	..	..	(c)	..	11,931,746
1856	689,174	12,214,976	..	..	..	(c)	..	12,904,150
1857	674,477	11,320,852	..	..	..	1,146	..	11,996,475
1858	1,104,175	10,384,824	..	..	..	850	..	11,489,949
1859	1,259,127	9,384,812	..	..	..	2,188	..	10,656,127
1860	1,465,373	8,806,276	14,565	..	..	460	..	10,376,674
1861	1,806,172	8,140,692	3,928	..	..	32	..	9,950,824
1862	2,467,780	6,920,804	625	..	..	..	..	9,989,209
1863	1,790,170	6,779,276	14,802	..	..	..	..	8,590,248
1864	1,304,926	6,489,788	83,292	..	..	..	..	7,878,006
1865	1,231,243	6,446,216	92,938	..	..	..	..	7,770,397
1866	1,116,404	6,187,792	85,561	..	..	1,044	..	7,390,801
1867	1,053,578	6,005,784	189,248	..	..	1,382	..	7,252,992
1868	994,665	6,739,672	593,516	..	..	2,536	..	8,330,389
1869	974,449	6,179,024	523,045	..	..	514	..	7,676,732
1870	931,016	5,217,216	489,539	..	..	3,666	..	6,641,437
1871	1,250,485	5,475,768	616,907	(a)550,000	..	23,467	..	7,916,637
1872	1,614,177	5,325,508	660,396	6,363	..	27,314	..	7,663,758
1873	1,896,375	4,681,588	717,540	293	..	18,390	..	6,814,186
1874	1,041,614	4,390,572	1,356,071	4,175	..	18,491	..	6,810,923
1875	877,694	4,273,668	1,498,433	7,034	..	11,982	..	6,668,811
1876	613,190	3,855,040	1,438,111	9,888	..	44,923	..	5,961,152
1877	471,448	3,238,612	1,817,265	..	..	23,239	..	5,050,614
1878	430,200	3,032,160	1,149,240	1,225	..	100,000	..	4,712,825
1879	407,219	3,035,788	1,034,216	90	..	230,895	(d)52,500	4,760,708
1880	444,252	3,316,484	944,869	..	..	201,297	(e)28,622	4,933,424
1881	573,582	3,333,512	957,570	880	..	216,901	111,945	5,194,390
1882	526,522	3,458,440	785,868	4,634	..	187,337	80,720	5,043,521
1883	458,530	3,121,012	736,810	10,534	..	176,442	77,195	4,580,523
1884	396,059	3,114,472	1,062,471	15,469	..	160,404	77,935	4,826,810
1885	378,665	2,940,872	1,062,514	18,295	..	155,309	70,414	4,626,069
1886	366,294	2,660,784	1,187,189	32,535	1,148	117,250	63,139	4,428,339
1887	394,579	2,471,004	1,481,990	72,003	18,517	158,523	68,775	4,665,401
1888	317,241	2,500,104	1,690,477	34,205	13,273	147,154	34,802	4,737,256
1889	431,784	2,459,352	2,695,629	37,305	58,871	119,703	47,651	5,853,295
1890	460,285	2,354,240	2,182,563	20,808	86,664	75,888	80,769	5,261,217
1891	559,231	2,305,596	2,030,312	27,380	115,182	145,459	98,701	5,281,861
1892	575,299	2,617,824	2,164,391	26,097	226,284	158,917	109,193	5,878,005
1893	651,286	2,684,504	2,167,794	12,561	421,385	141,326	108,130	6,186,986
1894	1,156,717	2,867,816	2,330,232	33,479	787,099	217,024	109,621	7,502,038
1895	1,315,929	2,960,344	2,150,561	26,094	879,748	206,115	102,784	7,641,575
1896	1,073,360	3,220,348	2,132,979	14,360	1,068,808	237,574	81,200	7,828,629
1897	1,104,315	3,251,064	2,552,668	39,103	2,564,977	296,660	81,127	9,889,914
1898	1,201,743	3,349,028	2,750,348	10,721	3,990,698	291,496	84,744	11,678,778
1899	1,623,320	3,418,000	2,838,446	15,582	6,246,732	327,545	63,565	14,533,160
1900	1,070,920	3,229,628	2,871,578	14,554	6,007,611	316,220	67,923	13,578,434
1901	737,164	3,102,753	2,541,764	16,613	7,235,653	295,176	88,415	14,017,538
1902	681,970	3,062,028	2,720,512	24,878	7,947,661	301,573	70,325	14,811,947
1903	1,080,029	3,259,482	2,839,801	28,665	8,770,719	254,403	69,801	16,302,900
1904	1,146,109	3,252,045	2,714,934	76,025	8,424,226	280,015	42,054	15,935,408
1905	1,165,013	3,173,744	2,517,295	45,853	8,305,654	312,380	51,658	15,571,597
1906	1,078,866	3,280,478	2,313,464	27,000	7,622,749	254,963	49,117	14,626,637
1907	1,050,730	2,954,617	2,178,938	20,540	7,210,749	277,607	21,681	13,514,862
1908	954,854	2,849,838	1,975,554	12,300	6,999,882	242,482	24,191	13,059,101
1909	869,546	2,778,956	1,935,178	30,206	6,776,274	190,201	31,103	12,611,469
1910	802,211	2,422,745	1,874,955	28,000	6,246,848	157,370	25,521	11,557,650
1911	769,353	2,140,855	1,640,323	15,000	5,823,075	132,108	30,910	10,551,624
1912	702,129	2,039,464	1,477,979	28,000	5,448,385	161,300	22,671	9,879,928
1913	635,703	1,847,475	1,128,768	27,800	5,581,701	141,876	13,250	9,376,573
1914	528,873	1,755,236	1,059,674	26,581	5,237,353	111,475	9,754	8,728,946
1915	562,819	1,397,793	1,060,703	25,830	5,140,228	78,784	(f)3,781	8,269,938
1916	459,370	1,090,194	913,951	33,000	4,508,532	67,072	(g)3,861	7,075,980
1917	349,038	857,500	761,639	30,334	4,121,645	61,577	(g)3,677	6,185,410
1918	369,743	674,655	567,371	26,252	3,723,183	44,724	(g)2,229	5,408,157
1919	336,240	691,632	618,101	16,465	3,748,882	39,252	(g)4,234	5,454,806
1920	275,109	859,461	648,168	9,546	3,475,392	35,134	(g)5,282	5,308,092
Total	62,979,870	300,877,399	58,945,619	1,594,555	144,835,788	8,793,515	2,272,875	605,290,621

(a) Mines Department estimate of gold production to 1871. (b) Including gold dust to the value of £3,920 exported in 1850. (c) Not available. (d) Estimate prior to 17th August, 1880. (e) 17th August to 31st December, 1880. (f) 1st January to 30th June. (g) Year ended 30th June.

The amount of gold raised in the Commonwealth in any one year attained its maximum in 1903, in which year Western Australia also reached its highest point. For the other States of the Commonwealth the years in which the greatest yields were obtained were as follows:—New South Wales, 1852; Victoria, 1856; Queensland, 1900; South Australia, 1904, and Tasmania, 1899.

The following table shews the quantity in fine ounces of gold raised in each State and in the Commonwealth during each of the last ten years, the value of one ounce fine being taken at £4 4s. 11 $\frac{1}{4}$ d., except in 1919, when it was taken as £5 2s. 1 $\frac{1}{2}$ d., and in 1920, at £5 12s. 6d. :—

QUANTITY OF GOLD PRODUCED IN THE COMMONWEALTH, 1911 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.
1911 ..	181,121	504,000	386,165	3,531	1,370,868	31,101	7,277	2,484,063
1912 ..	165,295	480,131	347,946	6,592	1,282,659	37,973	5,337	2,325,933
1913 ..	149,657	434,933	265,735	6,545	1,314,044	33,400	3,119	2,207,433
1914 ..	124,507	413,218	249,468	6,258	1,232,978	26,243	2,296	2,054,968
1915 ..	132,498	329,068	249,711	6,081	1,210,113	18,547	(a) 890	1,946,908
1916 ..	108,145	256,653	215,162	7,769	1,061,399	15,790	(b) 909	1,665,827
1917 ..	82,170	201,873	179,305	7,141	970,318	14,496	(b) 866	1,456,169
1918 ..	87,045	158,827	133,570	6,180	876,512	10,529	(b) 525	1,273,188
1919 ..	65,839	135,428	121,030	3,224	734,066	7,686	(b) 829	1,068,102
1920 ..	48,908	152,792	115,229	1,697	617,843	6,246	(b) 586	943,301

(a) 1st January to 30th June.

(b) Year ended 30th June.

3. *Changes in Relative Positions of States as Gold Producers.*—A glance at the figures in the table shewing the value of gold raised will sufficiently explain the enormous increase in the population of Victoria during the period 1851 to 1861, when an average of over 40,000 persons reached the State each year. With the exception of the year 1889, when its output was surpassed by that of Queensland, Victoria maintained its position as the chief gold-producer for a period of forty-seven years, or up to 1898, when its production was outstripped by that of Western Australia, the latter State from this year onward contributing practically half, and so far as recent years are concerned more than half the entire yield of the Commonwealth. New South Wales occupied the second place on the list until 1874, when Queensland returns exceeded those of the parent State, a condition of things that has been maintained ever since. South Australia has occupied the position of lowest contributor to the total gold yield of the Commonwealth since the year 1871. Taking the average of the last ten years, the relative position of each State in regard to the gold production of the Commonwealth was as follows:—

RELATIVE POSITION OF STATES AS GOLD PRODUCERS, 1911 TO 1920.

State.	Annual Average of Gold Production, 1911 to 1920.	Percentage on Commonwealth.	State.	Annual Average of Gold Production, 1911 to 1920.	Percentage on Commonwealth.
	Ozs.			Ozs.	
Commonwealth ..	1,742,589	100·0	New South Wales ..	114,519	6·6
Western Australia ..	1,067,080	61·2	Tasmania ..	20,201	1·2
Victoria ..	306,692	17·6	South Australia ..	5,502	0·3
Queensland ..	226,332	13·0	Northern Territory	2,263	0·1

4. *Methods of Gold Mining adopted in Each State.*—(i) *New South Wales.* In New South Wales the earlier "rushes" were to surface alluvial or shallow-sinking grounds. Many of these were apparently soon worked out, but there is reason to believe that in some instances payable results would be obtained by treating the rejected wash-dirt on more scientific principles. With the exhaustion of the surface deposits discoveries were made by sinking to what are called deep alluvial leads, representing the beds of old drainage channels in Pliocene and Pleistocene times. The first of these deep alluvial leads

was discovered at Forbes, in New South Wales, in 1862. The Tertiary deep leads at Gulgong were discovered in 1871. Cretaceous leads occur at Tibooburra, and detrital gold has been found in permo-carboniferous conglomerates at Tallawang. The method of dredging is at present being extensively used for winning gold from the beds of running streams, and from loose river flats and other wet ground where sinking would be impracticable. The system was introduced from New Zealand, where it was originally applied with great success on the Clutha River, and practically all the auriferous rivers of New South Wales have been worked by dredges. Hydraulic sluicing is employed also in several places, the necessary machinery being fitted to a pontoon for convenience in moving from place to place. The quantity of alluvial gold obtained, other than by dredging, amounted to 1,759 ozs. in 1920, the chief yields being—Sofala, 243 ozs.; Hill End, 178 ozs.; Trunkey, 160 ozs.; Tumut, 138 ozs.; Windeyer, 140 ozs.; and Wattle Flat, 125 ozs. The quantity obtained by dredging was 15,810 ozs.; the largest returns being obtained at Adelong, 6,949 ozs.; Gundagai, 5,033 ozs.; Araluen, 2,419 ozs.; Stuart Town, 750 ozs.; and Corowa, 518 ozs. During 1920 there were 14 bucket dredges and 1 pump dredge in operation. Their combined value was £63,056, and they gave employment to 126 men. The quantity of gold won from quartz amounted to 20,851 ozs. At the present time the Cobar district is the chief centre of the production from quartz, the yields from the Cobar and Canbelego fields included therein being respectively 737 ozs. and 10,630 ozs. Next come the Adelong field with 6,998 ozs.; Hill End, 2,535 ozs.; Hillgrove, 1,808 ozs.; and Gundagai, 995 ozs.

The table below shews as far as can be ascertained the yield from alluvial and quartz mining in each of the principal districts during 1920. Owing to the circumstance that it was impossible to obtain complete returns from all the mine and battery owners the total for the State necessarily falls short of that given in preceding pages.

GOLD WON IN NEW SOUTH WALES, ALLUVIAL AND QUARTZ, 1920.

District.	Alluvial.		Quartz.	Total.
	Other than by Dredging.	By Dredging.		
	Ozs.	Ozs.	Ozs.	Ozs.
Albert	11	..	..	11
Bathurst	572	..	1,685	2,257
Clarence and Richmond	10	..	39	49
Cobar .. .. .	..	..	11,367	11,367
Hunter and Macleay .. .. .	..	..	209	209
Lachlan	35	5,033	1,911	6,979
Mudgee	199	..	590	789
New England	53	6	3	62
Peel and Uralla	90	..	1,869	1,959
Southern	107	2,504	593	3,204
Tambaroora and Turon	469	750	2,536	3,755
Tumut and Adelong	213	7,517	49	7,779
Total	1,759	15,810	20,851	38,420

(ii) *Victoria.* Lode mining predominates in Victoria, although gold is also obtained from alluvial workings, both surface and deep leads. The deepest mines in Australia are found in the Bendigo district, where there are two shafts 4,614 and 4,318 feet deep respectively. Altogether there were some few years ago no less than fifty-three shafts in this district which had reached a depth of over 2,000 feet. A considerable amount of attention is given to dredging and hydraulic sluicing, particularly in the Beechworth, Maryborough, Castlemaine, Ararat, Stawell, Gippsland, and Ballarat districts, the number of plants in operation at the end of 1920 being 43, of which 15

were bucket dredges, 4 pumps, 18 jet elevators, and 6 sluicing by gravitation. The total quantity of gold won by dredging and sluicing in 1920 was 19,855 ozs. About 80 tons of tin were also recovered. The yields from alluvial workings and quartz reefs, as returned (in crude ounces) from the chief mining districts of the State during last year, were as follows:—

GOLD WON IN VICTORIA, ALLUVIAL AND QUARTZ, 1920.

District.				Alluvial.	Quartz.	Total.
				Ozs.	Ozs.	Ozs.
Ararat and Stawell	..	..	..	5,619	4,231	9,850
Ballarat	..	..	..	2,622	2,728	5,350
Beechworth	..	..	..	14,670	25,753	40,423
Bendigo	..	..	..	587	87,274	87,861
Castlemaine	..	..	..	4,627	13,146	17,773
Gippsland	..	..	..	2,942	858	3,800
Maryborough	..	..	..	1,319	261	1,580
Total	..	..	..	32,386	134,251	166,637

The largest output from lode mines in 1920 was furnished by the Constellation (Bendigo) with 40,992 ozs. The Carlisle and Unity mines, in the same area, yielded respectively 9,993 and 6,323 ozs. It was hoped that the consolidation of the mines in the "Central area" at Bendigo would result in a more extended treatment of the low-grade ore. No great development, has, however, taken place in this direction, and the success of the Bendigo Amalgamated Goldfields Co. which controls and works nearly all the mines has been due to the high-grade quartz raised from the Constellation mine, where 19,038 tons gave a yield of 40,992 ozs. Amongst other important yields from lode mines were those from the A.I Gold Mines at Gaffney's Creek in the Beechworth District, 8,470 ozs., and the Rose, Thistle and Shamrock in the same division, 4,577 ozs., while the Ajax North, Daylesford, produced 4,151 ozs. Of the deep alluvial mines the Chiltern Valley (Beechworth) produced 3,424 ozs. In dredging, Cock's Pioneer, at Beechworth, was the most successful, with 6,284 ozs. Tin ore to the value of upwards of £11,000 was also won by this company.

(iii) *Queensland.* Operations in Queensland are at present chiefly confined to reefing, and to the production of gold in connexion with the smelting of copper and other ores, the yield from alluvial in 1920 being only 588 ozs., while the quantity produced from stone treated was 18,372 ozs.; from copper and other ores 93,887 ozs.; and from old tailings 2,383 ozs.; making a total production of 115,230 ozs. The yields from the principal fields are given below:—

GOLD WON IN QUEENSLAND, ALLUVIAL AND QUARTZ, 1920.

District.				Alluvial.	From Stone Treated.	From Copper and other Ores and old Tailings.	Total.
				Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.
Charters Towers	..	..	..	287	3,963	1,372	8,622
Gympie	..	..	..	..	3,781	62	3,843
Mount Morgan	..	..	..	51	..	90,665	90,716
Ravenswood	..	..	..	..	1,126	..	1,126
Etheridge, Oaks and Woolgar	..	..	..	94	2,337	270	2,701
Cloncurry	..	..	..	9	..	2,790	2,799
Clermont	..	..	..	1	1,483	660	2,144
Chillagoe	..	..	..	..	2,070	..	2,070
Other districts	..	..	..	146	612	451	1,209
Total	..	..	..	588	18,372	96,270	115,230

As shewn in the table the Mount Morgan field easily takes first place amongst Queensland gold-producing areas. During 1920 this field also produced copper to the value of about £612,000.

(iv) *South Australia.* In South Australia alluvial gold has been worked for many years in the gullies round Adelaide, while a fair amount of gold has been obtained by this method at Teetulpa, in the northern area. The battery and cyanide returns as published in the *Mining Review* shew that the chief producing centres in 1920 were Deloraine and Tarcoola.

(v) *Western Australia.* The auriferous deposits of Western Australia may be grouped under three headings—(1) superficial deposits, (2) deposits in beds of conglomerate, and (3) lode and vein deposits. The first class includes a number of deposits of alluvial type, either in the beds of existing watercourses or in deep leads, up to 100 feet or more below present surface level. Associated with these are deposits of crystalline gold in "pug," oxide of iron, and soft weathered portions of underlying bed rock. Considerable areas of auriferous surface soil are also found, and these have apparently originated from the denudation by weathering of the bed rock and its associated veins. The shallow surface deposits have been worked by ground sluicing wherever water was available, but most of the ground has been worked by "dry-blowing." The pug and clayey bedrock are usually treated in puddling machines. In regard to (2) it may be noted that in several localities on the Pilbara goldfield and in one on the Yalgoo, gold has been found in conglomerate of the Nullagine series of rocks, now tentatively accepted as of Cambrian age. The gold is crystalline and is confined to the interstitial cementing material. Occasional occurrences of gold are met with in laterite conglomerate of tertiary and post tertiary age, and at Kintore in conglomerate of the same age. Lode and vein deposits alluded to in (3) are found in great variety in Western Australia. The gold is always found associated with iron pyrites in the unoxidised portions of the lodes, and often also with copper pyrites, arsenical pyrites and galena. Tellurides of gold occur at times. The principal auriferous rocks are of very great geological age, most probably pre-Cambrian, and possibly Archæan, and have all been subjected to intense metamorphism. It is found that the rich veins are not restricted to any one particular description of rock—granite, quartz, porphyry, quartz dolerite, diorite, etc., and even metamorphic sedimentary country rock, have been found to carry them in various parts of the State. The total production of gold from all sources during 1920 was 626,660 ounces, of which only about 1 per cent. was alluvial. The yields in each district as reported to the Mines Department were as shewn below, the total differing somewhat from that given on a preceding page, which represents gold actually exported or minted:—

GOLD WON IN WESTERN AUSTRALIA, ALLUVIAL, QUARTZ, ETC., 1920.

Goldfields.	Alluvial.	Dollied and Specimens.	Crushed.	Total.
	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.
East Coolgardie	235	230	401,031	401,496
East Murchison	4	73	19,523	19,600
Mount Margaret	64	589	76,683	77,336
Murchison	64	2,927	43,613	46,604
North Coolgardie .. .. .	..	22	12,002	12,024
Coolgardie	81	99	5,806	5,986
Phillips River .. .. .	..	..	1,423	1,423
North-east Coolgardie	8	424	1,307	1,739
Yilgarn .. .. .	..	7	37,629	37,636
Broad Arrow .. .. .	..	282	7,163	7,445
Peak Hill	5	58	1,593	1,656
Pilbara	120	1	3,931	4,052
Dundas .. .. .	..	282	6,259	6,541
Yalgoo .. .. .	..	..	2,965	2,965
West Pilbara	44	..	90	134
Other goldfields .. .. .	..	8	15	23
Total	625	5,002	621,033	626,660

The figures in the previous table are compiled from returns from the individual mines, and are somewhat incomplete; the total is therefore less than that shewn on page 331, which represents mint and export returns.

(vi) *Tasmania*. The yield from Tasmania in gold mining is chiefly obtained from quartz reefing, and the returns from each district in 1920 are given below—

GOLD WON IN TASMANIA, 1920.

District.	Total.	District.	Total.
	Ozs.		Ozs.
Beaconsfield	9	Lisle	105
Mathinna	562	Golconda	
Mt. Victoria	40	Mt. Claude	225
Warrentinna		North-West and West Coasts	5,318
Mt. Cameron	106		
Lefroy		Total	6,365

The total production was equal to 6,246 ozs. fine. During 1920 the blister copper produced by the Mt. Lyell Mining and Railway Co. Ltd. contained approximately 5,273 ozs. of gold.

(vii) *Northern Territory*. The production for 1920 amounted to 586 ozs.. It is stated that the potentialities of the older fields have by no means been exhausted, although a revival of the industry depends on the expenditure of large sums of money, either by the Government or by mining speculators, on developmental work.

5. **Remarkable Masses of Gold.**—Allusion has already been made in preceding Year Books to the discovery of “nuggets” and other remarkable masses of gold, but it is not proposed to repeat this information in the present issue. (See Year Book No. 4, page 500.)

6. **Modes of Occurrence of Gold in Australia.**—This subject has been alluded to at some length in preceding issues of the Year Book, but considerations of space will not permit of repetition in the present issue.

7. **Place of the Commonwealth in the World's Gold Production.**—In the table given below will be found the estimated value of the world's gold production, and the share of the Commonwealth therein during the ten years 1911 to 1920. The figures given in the table have been compiled chiefly from returns obtained directly by the Commonwealth Bureau of Census and Statistics from the gold-producing countries of the world.

WORLD'S GOLD PRODUCTION, 1911 TO 1920.

Year.	World's Production of Gold.	Gold Produced in Commonwealth.	Percentage of Commonwealth on Total.
	£	£	%
1911	94,977,167	10,551,624	11.11
1912	96,518,440	9,879,928	10.24
1913	93,018,747	9,376,573	10.08
1914	90,358,762	8,728,946	9.66
1915	95,704,643	8,269,938	8.64
1916	93,042,223	7,075,980	7.61
1917	87,721,190	6,185,410	7.05
1918	77,301,571	5,408,157	7.00
1919	89,646,033	5,454,806	6.08
1920	90,248,708	5,308,092	5.88

While the production of gold in the Commonwealth shews a considerable decrease during the twenty-three years from 1897 to 1920, the world's total production increased by over 87 per cent. in the same period. The following table will be found interesting as shewing the various foreign countries where the chief increases have taken place during the interval in question :—

GOLD YIELD, VARIOUS COUNTRIES, 1897 TO 1920.

Country.	1897.	1900.	1918.	1919.	1920.
	£	£	£	£	£
United States ..	11,787,000	16,269,000	13,841,000	14,695,000	13,581,000
Canada ..	1,240,000	5,742,000	2,972,000	3,916,000	4,303,000
Mexico ..	2,045,000	1,884,000	3,457,000	3,873,000	4,154,000
Brazil ..	247,000	476,000	544,000	664,000	710,000
Colombia ..	458,000	246,000	959,000	1,482,000	1,578,000
Transvaal ..	11,654,000	1,481,000	35,759,000	42,548,000	45,890,000
Rhodesia ..	1,000	308,000	2,682,000	3,030,000	3,108,000
Gold Coast ..	85,000	38,000	1,338,000	1,508,000	1,167,000
India ..	1,571,000	1,893,000	2,060,000	2,304,000	2,609,000
Corea ..	208,000	371,000	604,000	463,000	510,000
Japan ..	142,000	290,000	1,159,000	1,247,000	1,337,000
Netherlands East Indies	24,000	112,000	431,000	472,000	500,000

The largest increase amongst the more important producing countries was recorded in the Transvaal, where the production was nearly four times as great in 1920 as in 1897. During the last three years, however, as the table shews, there has been a general increase except in the case of Gold Coast and the United States.

The next table shews the average yearly value in order of importance of the yield in the chief gold producing countries for the decennium 1911-20 :—

AVERAGE ANNUAL VALUE, GOLD YIELD, CHIEF PRODUCING COUNTRIES, 1911 TO 1920.

Country.	Value.	Country.	Value.
	£		£
Transvaal ..	38,738,000	Canada ..	3,349,000
United States ..	17,453,000	India ..	2,301,000
Australasia ..	8,826,000	Gold Coast ..	1,488,000
Commonwealth ..	7,623,000	Colombia ..	1,122,000
Russia ..	4,366,000	New Zealand ..	1,157,000
Mexico ..	3,160,000	Japan ..	1,137,000
Rhodesia ..	3,216,000		

The comparison has been restricted to countries where the average for the period is in excess of a million sterling.

8. Employment in Gold Mining.—The number of persons engaged in gold mining in each State in 1901 and during each of the last five years is shewn in the following table :—

PERSONS EMPLOYED IN GOLD MINING, 1901 AND 1916 TO 1920.

Year.	N.S.W.	Victoria..	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901 ..	12,064	27,387	9,438	1,000	19,771	1,112	200	70,972
1916 ..	2,317	6,402	1,900	150	9,824	176	99	20,868
1917 ..	1,823	6,069	1,375	150	8,752	155	92	18,416
1918 ..	2,540	3,547	929	100	7,790	125	84	15,115
1919 ..	1,656	3,065	792	100	7,242	73	60	12,988
1920 ..	1,712	3,742	611	100	7,087	48	20	13,320

§ 3. Platinum and the Platinoid Metals.

1. **Platinum.**—(i) *New South Wales.* The existence of platinum was first noted in New South Wales in 1851 by Mr. S. Stutchbury, who found a small quantity near Orange. Since the year 1878 small quantities of the metal have been obtained from beach sands in the northern coastal district. Platiniferous ore was noted in 1889 at Broken Hill. The principal deposits at present worked in the State are situated at Platina in the Fifield division, near Parkes, and the production in 1920 amounted to 796 ozs., valued at £16,672, while the total production recorded for the period 1894 to 1920 amounted to 15,689 ozs., valued at £16,672. The production in 1920 was nearly four times larger than that in the preceding year, the increased activity being due to the high prices realised for the metal.

At Platina, gold is found in association with the platinum, and it is estimated that there are 200 acres of metalliferous country sufficiently rich to yield a satisfactory return, provided it were worked on a large scale with an abundant water supply. The metal is also found in the Goulburn division, and small quantities are obtained in beach mining in the Ballina Division.

(ii) *Victoria.* In Gippsland, Victoria, the metal has been found in association with copper. The production of platinum in 1913 amounted to 127 ozs., and was contained in matte produced by the Gippsland Copper, Platinum, and Gold Mining and Smelting Company, from ores raised from the old mine at Cooper's Creek. There was no production during recent years.

(iii) *Queensland.* Platinum associated with osmiridium has been found in the beach sands between Southport and Currumbin, in creeks on the Russell goldfield near Innisfail, and in alluvial deposits on the Gympie goldfield.

2. **Osmium, Iridium, etc.** (i) *New South Wales.* Small quantities of osmium, iridium, and rhodium are found in various localities. As far back as 1860, the Rev. W. B. Clarke stated that he found native iridium. Platinum, associated with iridium and osmium, has been found in the washings from the Aberfoil River, about 15 miles from Oban; on the beach sands of the northern coast; in the gem sand at Bingara, Mudgee, Bathurst, and other places. In some cases, as for example in the beach sands of Ballina, the osmiridium and other platinoid metals amount to as much as 40 per cent. of the platinum, or about 28 per cent. of the whole metallic content.

(ii) *Victoria.* In Victoria, iridosmine has been found near Foster, and at Waratah Range, South Gippsland.

(iii) *Tasmania.* For many years osmiridium has been known to exist in the bed of the Savage River, on the West Coast, and in rivulets and creeks in the serpentine country, but it was not until early in 1911 that efforts were made to work the deposits. During that year the price paid for the mineral reached £7 10s. per oz., and about 100 men were engaged in the search for it. The quantity produced amounted to 271 ozs., valued at £1,188. In 1912 the production was 779 ozs., valued at £5,742, or an average of £7 7s. 9d. per oz. The yield in 1918 amounted to 1,607 ozs., valued at £44,833, in 1919 to 1,670 ozs., valued at £39,614, and in 1920 to 2,009 ozs., valued at £77,114. Owing to the war the market in 1914 was for a time closed, but a parcel of 13 ozs. forwarded to America was sold at an average of £5 13s. 6d. per oz. The declining production in 1915 and 1916 was due to difficulty in disposing of the metal. In 1917 the price increased from £11 to £18 10s. per oz., and for selected parcels £22 10s. per oz. was paid, while in 1918 the price of £37 5s. per oz. was reached. The average price in 1919 was £23 14s. 5d. per oz. In February, 1920, as much as £40 per oz. was realised, while in October the record price of £42 per oz. was obtained, but there was a fall in December to £35, and in some cases sellers accepted £30 per oz. Besides a steady and increasing use in the manufacture of fountain pens there is a demand for iridium and osmiridium for hard platinum jewellery.

§ 4. Silver.

1. Occurrence in Each State.—Particulars regarding the occurrence of silver in each State will be found in preceding Year Books, Nos. 1 to 5, but considerations of space preclude the repetition of this matter in the present volume.

2. Development of Silver Mining.—In illustration of the development of silver mining in Australia the following table has been compiled, shewing the production of silver, silver-lead and ore, and lead from each State during the years 1881, 1891, 1901, and the five years ending 1920 :—

PRODUCTION OF SILVER AND LEAD, AUSTRALIA, 1881 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
1881 ..	14,651	5,021	13,494	1,182	11,224	50	..	45,622
1891 ..	3,621,614	6,277	50,000	1,787	250	52,284	4,140	3,736,352
1901 ..	1,954,964	6,657	69,234	3,196	7,609	206,228	710	2,248,598
1916 ..	4,084,623	3,338	50,588	5,173	109,221	153,796	(a)1,068	4,407,807
1917 ..	5,110,096	1,406	55,181	12,351	178,872	152,122	(a)275	5,510,303
1918 ..	5,739,509	1,319	36,645	10,492	189,636	127,176	(a)200	6,104,977
1919 ..	1,647,878	1,607	28,511	180	107,508	189,967	(a)132	1,975,783
1920 ..	123,481	1,714	135,559	2,646	190,484	309,035	(a)299	763,218

(a) Year ended 30th June.

The heavy falling-off in the production for 1919 and 1920 as compared with previous years was due to the suspension of operations owing to industrial troubles at the principal mines on the Broken Hill field. In addition to causing a cessation of mining operations and treatment of tailings on the Broken Hill field, the trouble there resulted in the closing of the smelting works at Cockle Creek, upon which most of the silver-lead mines in other parts of the State depend for the sale of their ores.

It must be understood that the totals for New South Wales in the above table represent the *net* value of the product (excluding zinc) of the silver-lead mines of the State. In explanation of the values thus given, it may be noted that the metallic contents of the larger portion of the output from the silver-lead mines in the State are extracted outside New South Wales, and the Mines Department considered, therefore, that the State should not take full credit for the finished product. Hence the *net* value referred to above relates to that of the ore, concentrates, and bullion, as declared by the several companies to the Customs Department at date of export. The real importance of the State as a producer of silver, lead, and zinc is thus to some extent lost sight of. The next table, however, which indicates the quantity of these metals locally produced, and the contents by average assay of concentrates exported during the last five years, will shew, as regards New South Wales, the estimated total production and the value accruing to the Commonwealth from the three metals :—

TOTAL PRODUCTION FROM SILVER-LEAD MINES OF NEW SOUTH WALES,
1916 TO 1920.

Year.	Metal Produced within Australia.				Contents of Concentrates exported.			
	Silver.	Lead.	Zinc.	Value.	Silver.	Lead.	Zinc.	Value.
	ozs. fine.	tons.	tons.	£	ozs. fine.	tons.	tons.	£
1916 ..	6,382,518	128,438	5,277	5,238,276	1,725,374	16,428	69,141	1,139,607
1917 ..	7,562,286	138,006	4,694	5,765,094	983,693	6,181	43,912	668,934
1918 ..	8,724,018	155,306	5,622	6,744,034	535,943	3,178	21,926	232,210
1919 ..	5,886,947	80,175	(a)7,119	4,109,466	417,871	2,425	18,146	253,751
1920 ..	196,111	1,749	(b)10,565	515,728	470,221	3,025	21,742	274,061

(a) Including 169 tons of Zinc Oxide valued at £8,112.

(b) Including 692 tons of Zinc Oxide and Zinc Lead Oxide, valued at £31,459.

The figures given above are quoted on the authority of the Mines Department of New South Wales, which in the year 1918 amended the totals for silver previously published for the years 1915-17, while in 1919 considerable modifications were made in the figures relating to quantity and value of concentrates exported.

3. **Chief Centres of Silver Production.**—Broken Hill, in New South Wales, is the great centre of silver production in Australia.

(i) *New South Wales.* (a) *Broken Hill.* A description of the silver-bearing area in this district is given in earlier issues of the Year Book. During 1913 the output of ore from the mines in this division amounted to 1,744,000 tons, the highest recorded in the history of the field, but owing to the dislocation caused by the war the quantity raised in 1914 decreased to 1,442,000 tons. For the four years 1915 to 1918 the ore raised averaged over 1,200,000 tons, but, owing to the cessation of operations through industrial troubles and the fall in the price of metals the production in 1919 dwindled to 415,400 tons, and in 1920, when operations were only carried on for a few weeks, to 38,661 tons.

Although the returns are not complete in all cases, the following table relating to the mines at Broken Hill will give some idea of the richness of the field :—

RETURNS OF BROKEN HILL SILVER MINES TO END OF 1920.

Mine.	Authorised Capital.	Value of Output to end of 1920.	Dividends and Bonuses Paid to end of 1920.
	£	£	£
Broken Hill Proprietary Co. Ltd. ..	3,000,000	(a) 48,277,455	12,185,154
Broken Hill Proprietary Block 14 Co. Ltd. ..	155,000	3,905,668	630,660
British Broken Hill Proprietary Co. Ltd. ..	339,000	4,843,822	821,280
Broken Hill Proprietary Block 10 Co. Ltd. ..	1,000,000	4,916,484	1,425,000
Sulphide Corporation Ltd. (Central Mine) ..	1,050,000	(b) 20,646,054	2,709,375
Broken Hill South Ltd. ..	800,000	10,069,981	2,535,000
North Broken Hill Mining Co. Ltd. ..	600,000	6,495,775	1,978,940
Broken Hill Junction Lead Mining Co. ..	150,000	1,148,700	87,500
Junction North Broken Hill Mine ..	375,000	2,631,520	160,814
The Zinc Corporation Ltd. ..	(c)	2,987,089	10,000
Barrier South Ltd. ..	168,000	151,517	50,000
Totals ..	7,637,000	106,074,065	22,593,723

(a) The value of the ores purchased during the years 1908 to 1914 is not included. understated owing to incomplete returns.

(b) Output

(c) Not available.

The returns relating to dividends and bonuses paid are exclusive of £1,744,000, representing the nominal value of shares in Block 14, British, and Block 10 companies, allotted to shareholders of Broken Hill Proprietary Company.

If the output of the companies engaged in treating the tailings, etc., be taken into consideration the totals for output and dividends shewn in the table would be increased to about 111½ millions and 26½ millions respectively.

(b) *Yerranderie.* The mines in the Yerranderie division in the Southern Mining District produced 299,123 ozs. of silver in 1920, besides 439 ozs. of gold and 740 tons of lead, the total production being valued at £38,869.

(c) *Cobar.* A considerable quantity of silver is obtained from the Great Cobar Mine and attached properties, the production in 1914 amounting to 24,305 ozs. Owing to the dislocation of the industry caused by the war the yield in 1915 fell to 1,838 ozs. but it rose again in 1916 to nearly 48,000 ozs., and in 1918 to 98,000 ozs. In 1919, however, the return fell to 18,000 ozs., but rose again in 1920 to 51,000 ozs.

(d) *Sunny Corner.* In this division of the Bathurst Mining District 30,000 ozs. of silver and 155 ozs. of gold were produced in 1920.

(e) *Other Areas.* Small quantities were produced during the year in the Condobolin division of the Lachlan District, in the Hillgrove and Tingha divisions of the Peel and Uralla Mining District, from Leadville in the Mudgee division, from the Tumbumba area in the Tumut and Adelong District, and in the New England Mining District.

(ii) *Tasmania.* The silver produced in 1920 amounted to 623,359 ozs., valued at £166,767, and the lead to 3,856 tons, valued at £142,268. The principal producers of

silver were Mt. Lyell, 169,949 ozs. (contained in blister copper); the Zeehan Mines, 159,810 ozs.; North Mt. Farrell, 140,582 ozs.; Magnet Mines, 99,358 ozs.; and Round Hill, 53,661 ozs. Lead to the amount of 1,241 tons was produced by the Zeehan Mines; 600 tons by the Magnet Mines; 1,349 tons by the North Mt. Farrell, and 665 tons by the Round Hill Mines.

(iii) *Queensland.* The yield for the chief silver-producing centres in 1920 was as follows:—Chillagoe, silver £18,854, lead £40,795; Cloncurry, silver £7,321; Etheridge, silver £6,659, lead £5,297; Mt. Morgan, silver £6,283; Herberton, silver £18,138, lead £11,929; Stanthorpe, silver £5,294. Towards the end of the year 1918 a discovery of argentiferous lead ore was made at Indooroopilly, one of the suburbs of Brisbane. This deposit yielded in 1920, 90 tons of lead, valued at £3,449, and 14,410 ozs. of silver, valued at £3,708.

(iv) *South Australia.* Rich specimens of silver ore have been discovered at Miltalie and Poonana, in the Franklin Harbour district, also at Mount Malvern and Olivaster, near Rapid Bay, and in the vicinity of Blinman and Farina. The surrounding district is highly mineralized, but, so far, has not been thoroughly prospected. Attention has recently been devoted to the silver-lead ores at Eukaby, near Baratta. The production of silver and silver-lead ore in 1920 was valued at £2,646.

(v) *Western Australia.* The quantity of silver obtained as a by-product and exported in 1920 was 130,692 ozs., valued at £36,605. In addition, lead and silver-lead to the value of £84,743, and 1,930 tons of pig lead, valued at £69,136, were exported.

(vi) *Northern Territory.* Silver-lead ores are found near Pine Creek, and at Mount Shoebridge near Brock's Creek railway station. Production in 1920 was small, amounting to a little over 17 tons, valued at £299. There are a number of fair-sized galena lodes in the Pine Creek and McArthur River districts but owing to costs of transport and realisation little attention is devoted to them.

4. **World's Production of Silver.**—The world's production of silver during the last ten years for which particulars are available is estimated to have been as follows:—

WORLD'S PRODUCTION OF SILVER, 1911 TO 1920.

.. ..	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
World's production in 1,000 fine ozs.(a)	254,214	250,979	214,391	171,429	185,443	168,693	174,188	197,394	174,517	171,200

(a) Add 000 to figures for fine ounces.

The Commonwealth's share in the world's silver production in 1919 was estimated at 7,000,000 ozs., or about 4 per cent. on the total production, but in 1920, owing to the cessation of operations at the Broken Hill field, the total local extraction fell to 681,000 ozs., and the estimated silver contents of the ores, bullion, and concentrates exported to 1,122,000 ozs. The figures for the world's production of silver are given on the authority of *The Mineral Industry*.

5. **Prices of Silver.**—As the production of silver is dependent to a very large extent on the price realised, a statement of the average price per standard ounce in the London market at decennial intervals from 1881 to 1911, and during the last six years is given below:—

PRICE OF SILVER, 1881 TO 1920.

Year	1881.	1891.	1901.	1911.	1915.	1916.	1917.	1918.	1919.	1920.
Pence per standard oz.	51 $\frac{1}{2}$	45 $\frac{1}{2}$	27 $\frac{1}{2}$	24 $\frac{1}{2}$	23 $\frac{1}{2}$	31 $\frac{1}{2}$	40 $\frac{1}{2}$	47 $\frac{1}{2}$	57 $\frac{1}{2}$	61 $\frac{1}{2}$

During the month of November, 1906, owing to the small sales in New York, and also to the fact that the Indian, American, and Mexican Governments were all buying silver, the price rose to 33 $\frac{1}{2}$ d., the highest realised since 1893, when the average stood at 36 $\frac{1}{2}$ d. The high average in 1917 was succeeded by a further rise to 47 $\frac{1}{2}$ d. in 1918, the monthly averages ranging from 43.2d. in March to 49 $\frac{1}{2}$ d. in September and October. Prices in 1919 shewed a sensational rise. Beginning with an average of about 48d. per ounce during each of the first four months of the year, prices rose rapidly until in September the high average of 61.7d. was reached, followed by 64d. in October, 70d. in November,

and 76.4d. in December. In January, 1920, the price rose to 79.8d., and in February the record figure of 85d. per oz. was reached. Next month, however, there was a drop to a little over 74d., and from August, when the price was 59.87d., the quotations fell rapidly, the figure in December being 41.85d.

6. **Employment in Silver Mining.**—The number of persons employed in silver mining in 1901 and during each of the last five years is given below :—

NUMBER OF PERSONS EMPLOYED IN SILVER MINING, 1901 AND 1916 TO 1920.

Year.	N.S.W.	(c) Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Terr.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901 ..	6,298	..	40	150	..	2,414(a)	(b)	8,902(c)
1916 ..	6,461	..	62	25	(d)244	555	36	7,433
1917 ..	7,619	..	71	..	(d)328	646	33	8,697
1918 ..	7,585	..	98	..	(d)382	631	10	8,706
1919 ..	6,556	..	145	..	(d) 74	798	3	7,576
1920 ..	1,931	..	143	..	(d)238	517	2	2,831

(a) Including copper miners. (b) Included in South Australia. (c) Including copper miners in Tasmania.

(d) Lead ore. (e) The silver produced in Victoria is obtained in gold refining at the Mint.

As the table shews, the bulk of the employment was in New South Wales and Tasmania, the quantity of silver raised in the other States, excepting Queensland, being unimportant. The closing of the mines on the Broken Hill field during the greater part of the year was responsible for the falling-off in the total for 1920.

§ 5. Copper.

1. **Production of Copper.**—The production of copper in the various States of the Commonwealth has been influenced considerably by the ruling prices, which have undergone extraordinary fluctuations. The quantity and value of the local production as reported and credited to the mineral industry in earlier years and for 1916 to 1920 are shewn in the following tables :—

PRODUCTION OF COPPER, AUSTRALIA, 1881 TO 1920.

State.	1881.	1891.	1901.	1908.	1916.	1917.	1918.	1919.	1920.
QUANTITY.									
N.S.W. {	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Ingot & Matte	4,124	2,363	6,087	8,679	5,617	6,576	6,510	1,460	1,290
Ore	1	347	645	392	554	..	..	..	..
Victoria {	583	60	..	983	..	..	..	..	..
Ingot & Matte	331	85	3,087	14,698	19,520	19,062	18,980	9,997	15,897
Ore .. ..	..	35	1,997	..	..	..	..	..	..
Q'land {	3,824	3,592	9,741	5,628	7,279	7,213	7,169	2,517	4,339
Ingot & Matte	21,638	18,035	1,869	..	..	..	..	..	..
Ore .. ..	..	..	880	479	457	535	478	4	137
S. Aust. {	..	263	2,661	2,503	650	966	1,643	455	1,511
Ingot & Matte	..	..	9,981	8,833	6,305	5,845	5,559	5,071	4,792
Ore .. ..	..	..	10,029	1,185	97	771	444	..	..
Tasmania {	..	..	..	100	..	..	..	..	..
Ingot & Matte	..	..	..	..	..	..	..	..	..
Ore .. ..	..	257	483	424	(a)950	(a)48	(a)619	(a)159	(a) 67
Northern Territory {	..	..	..	..	..	..	..	..	..
Ingot & Matte	..	..	..	..	..	..	..	..	..
Ore .. ..	..	..	..	..	..	..	..	..	..

VALUE.

	£	£	£	£	£	£	£	£	£
N.S.W...	267,884	119,195	412,292	502,812	598,733	814,154	696,580	139,296	127,978
Victoria	8,186	216	..	1,994	2,829	..	..	..	..
Q'land ..	19,637	4,064	182,256	882,901	1,660,178	2,208,232	2,087,751	952,501	1,551,995
S. Aust.	418,296	235,817	491,617	338,000	488,986	902,495	828,556	228,930	423,601
W. Aust.	..	4,462	110,769	57,091	142,363	85,738	66,146	10,105	25,165
Tasmania	..	..	1,010,037	609,651	375,664	847,754	776,106	558,694	528,237
Nor. Terr.	..	3,619	8,460	7,968	482	(a)5,517	(a)9,648	(a)2,349	(a) 780
C'wealth	714,003	367,373	2,215,431	2,400,417	3,269,235	4,863,896	4,464,787	1,891,875	2,657,756

(a) Year ended 30th June.

A short account of the discovery of copper in the different States is given in earlier Year Books.

2. *Sources of Production.*—(i) *New South Wales.* During the greater portion of the year 1920, the mines on the Cobar field, the largest producers of copper in past years, were non-productive. The plant at the Great Cobar was dismantled, and it is stated that a renewal of operations depends on improved methods of treatment. Owing to an outbreak of fire in the workings, the C.S.A. mine was sealed down for the greater part of the year, and the cessation of operations brought about the closing of other mines dependent on it for the purchase and treatment of their ores. The total yield of copper from the Cobar field in 1920 was 821 tons, as compared with 1,319 tons in 1919, and 5,237 tons in 1918. Values of the more important yields furnished during 1920 were as follows:—C.S.A., £23,260; Cobar Gladstone, £12,700; Mount Royal Mines, Tottenham, £12,339.

(ii) *Queensland.* The yield in this State amounted in 1920 to 15,897 tons valued at £1,551,995, to which the Cloncurry field contributed 7,672 tons, valued at £749,041. Next in order were Mount Morgan with 6,263 tons, valued at £611,527; Etheridge, 1,139 tons, valued at £111,204; Herberton, 409 tons, £39,889; Chillagoe, 218 tons, £21,283; and Gladstone, 147 tons, £14,341.

The Cloncurry district—reckoned the richest and most extensive cupriferous area in Australia—under normal circumstances produces more than half the copper output of the State, and its yield far exceeds in value the total gold output. The increase in production recorded in the Herberton, Chillagoe, and Etheridge fields was due to the re-opening of the Chillagoe smelters as a State enterprise.

(iii) *South Australia.* Taking the entire period over which production extended, the yield of copper in South Australia easily outstrips that of any other State in the Commonwealth. In recent years, however, Queensland, Tasmania, and New South Wales have come to the front as copper producers, as the table on the preceding page shews. Deposits of copper ore are found over a large portion of South Australia. A short account of the discovery, etc., of some of the principal mining areas, such as Kapunda, Burra Burra, Wallaroo, and Moonta, is given in preceding issues of the Official Year Book. During 1920 the output amounted to 4,339 tons, valued at £423,601, the bulk of the production being from the Wallaroo and Moonta Company which in normal times employs about 1,500 hands. About 170 tons of high grade copper ore were sold in 1920 by the Dome Rock Copper Mine near Booloomatta.

(iv) *Western Australia.* The value of copper and ore exported from this State in 1920 was £25,165. According to the returns, the production in the West Pilbara field was 1,700 tons, valued at £32,059, while the Phillips River field shewed a production of 217 tons, valued at £4,125. The Peak Hill field produced 35 tons, valued at £1,401, and Pilbara 9 tons, valued at £360.

(v) *Tasmania.* The quantity of copper produced in Tasmania during 1920 was 4,792 tons, valued at £528,237, the bulk of the production being due to the Mount Lyell Mining and Railway Co. Ltd. This Company treated 175,033 tons of ore in 1920, of which 63 tons were purchased from other mines, and produced 4,836 tons of blister copper, containing copper, 4,791 tons; silver, 169,949 ozs.; and gold 5,273 ozs., the whole being valued at £598,148. The employees in 1920 numbered 1,577, of whom 781 were miners, 655 were engaged in the reduction works, and 141 in the railway department.

(vi) *Northern Territory.* Copper has been found at various places, including Copperfield, 5 miles south-east of Pine Creek, Mount Diamond and Burns Wolfram, 45 miles east of Pine Creek, at Coronet Hill, Daly River, Maude Creek, Kilgour Creek, Woolagorang, and Borroloola. The total production in 1920 was 67 tons of ore, valued at £780, raised chiefly at Mt. Diamond. Although there are many promising copper propositions in the Territory, lack of capital prevents their development.

3. **Prices of Copper.**—The great variation in price that the metal has undergone is shewn in the following table, which gives the average price in London and New York during 1901 and in each of the last seven years. The figures are given on the authority of *The Mineral Industry*.

FLUCTUATION IN VALUE OF COPPER, 1901 AND 1914 TO 1920.

Year.				London Price per Ton Standard Copper.	New York Price in Cents per lb. Electrolytic Copper.
				£	Cents.
1901	..	..	..	66.79	16.11
1914	..	..	..	61.52	13.60
1915	..	..	..	72.53	17.28
1916	..	..	..	116.03	27.20
1917	..	..	..	124.89	27.18
1918	..	..	..	115.53	24.63
1919	..	..	..	90.80	18.69
1920	..	..	..	97.48	17.46

4. **World's Production of Copper.**—The world's production of copper in 1901, and during the five years 1916 to 1920, is estimated to have been as follows :—

WORLD'S PRODUCTION OF COPPER, 1901 AND 1916 TO 1920.

Year	..	..	..	1901.	1916.	1917.	1918.	1919.	1920.
World's production— (short tons)	..	..	..	583,517	1,552,347	1,582,595	1,537,884	1,085,000	1,044,000

The Commonwealth production is estimated at about 2.8 per cent. of the total.

5. **Employment in Copper Mining.**—The number of persons employed in copper mining during 1901 and in each of the last five years was as follows :—

PERSONS ENGAGED IN COPPER MINING, 1901 AND 1916 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.	No.
1901	2,964	4	814	4,000	321	(a)	(b)	8,103(c)
1916	1,661	..	2,922	2,000	113	1,719	97	8,512
1917	2,074	..	3,154	2,000	154	1,671	92	9,145
1918	1,529	..	3,209	2,000	158	1,597	60	8,553
1919	1,148	..	2,521	400	72	1,571	12	5,724
1920	583	2	1,815	1,285	116	1,577	2	5,380

(a) Included with silver miners. (b) No returns. (c) Excluding Tasmania and Northern Territory.

§ 6. Tin.

1. **Production of Tin.**—The development of tin mining is, of course, largely dependent on the price realised for the metal, and, as in the case of copper, the production has been subjected to somewhat violent fluctuations. The tables below shew the quantity and value of the production as reported to the Mines Departments in each of the Commonwealth States during the years 1881, 1891, 1901, and 1916 to 1920 :—

TIN PRODUCED IN AUSTRALIA, 1881 TO 1920.

State.	1881.	1891.	1901.	1916.	1917.	1918.	1919.	1920.
QUANTITY.								
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales { Ingots	5,824	1,454	649	909	1,109	1,182	1,146	..
{ Ore	609	203	11	1,220	963	738	1,546	2,486
Victoria .. { Ingots	70	..	..	..	..	..	..	..
{ Ore	20	1,678	77	122	139	135	113	84
Queensland { Ingots	479	193	477	(b)	(b)	(b)	(b)	(b)
{ Ore (a)	2,977	2,043	1,184	1,707	1,177	1,311	994	1,486
Western Australia { Ingots	..	..	97	..	..	..	..	..
{ Ore	..	204	507	463	383	415	318	243
Tasmania .. { Ingots	4,120	3,236	1,789	2,219	2,637	2,256	1,680	1,310
{ Ore	4	56	79	(c)	(c)	(c)	(c)	(c)
Northern Territory Ore	..	29	80	(d) 147	(d) 270	(d) 246	(d) 162	(d) 180
VALUE.								
	£	£	£	£	£	£	£	£
New South Wales ..	568,795	133,963	76,544	306,497	373,696	548,876	416,623	413,794
Victoria ..	7,620	5,092	4,181	12,955	19,709	24,481	17,561	12,815
Queensland ..	193,699	116,387	93,723	181,401	160,600	251,755	143,167	252,054
Western Australia ..	..	10,200	52,102	49,101	45,288	76,952	47,269	49,449
Tasmania ..	375,775	292,900	216,186	350,852	427,917	488,798	395,794	369,362
Northern Territory ..	..	1,870	5,498	(d) 14,700	(d) 27,120	(d) 41,432	(d) 30,021	(d) 27,610
Total ..	1,145,989	560,502	448,234	915,506	1,054,330	1,432,294	1,050,435	1,125,084

(a) Dressed tin ore, about 70 % tin. (b) Included with ore. (c) Included with ingots.
(d) Year ending 30th June.

2. **Sources of Production.**—(i) *New South Wales.* A large proportion of the output in New South Wales was obtained by dredging, the quantity so won in 1920 being valued at £176,834. In the Tingha division of the Peel and Uralla district the yield amounted to 687 tons, valued at £121,841. The Emmaville division in the new England district shewed a yield of 892 tons, valued at £150,110, the Vegetable Creek mine in this area being the chief producer of tin in the State with an output in 1920 of 248 tons, valued at £47,819. In the Wilson's Downfall division, 113 tons, valued at £20,498, were raised. The Glen Innes division, also in the New England district, returned a yield of 166 tons, valued at £30,856, and the Torrington division 117 tons, valued at £18,908. The Ardlethan field, in the Lachlan division, produced ore and concentrates to the value of £59,454.

(ii) *Victoria.* In Victoria lode tin has been discovered at Mt. Wills, Beechworth, Eldorado, Chiltern, Stanley, and other places in the north-eastern district; and stream tin has been found in a large number of places, including those just mentioned in the north-eastern district. The bulk of the production in 1920 was obtained by dredging and sluicing, the Cock's Pioneer Gold and Tin Co. in the Beechworth district contributing 75 tons, valued at £11,575.

(iii) *Queensland.* The chief producing districts in Queensland during 1920 were Herberton, 836 tons, valued at £142,166; Stanthorpe, 158 tons, £28,349; Cooktown, 125 tons, £22,633; Chillagoe, 95 tons, £15,837; and Kangaroo Hills, 260 tons, £40,843. The high prices realised for tin early in 1920 had a stimulating effect on the industry, the total production for the year being 1,486 tons, as compared with 994 in 1919.

(iv) *Western Australia.* The export of tin ore for the State during 1920 amounted to 243 tons, valued at £49,449. The production from the Greenbushes field amounted to 190 tons, valued at £31,249, and from the Pilbara field 41 tons, valued at £7,616. There was no production from the other fields in 1920.

(v) *Tasmania.* During 1920 the quantity of metallic tin won amounted to 1,310 tons, valued at £369,362. The bulk of the production for the year came from the North-Eastern Division with 604 tons, valued at £168,963. Of the total yield in this division, 306 tons were contributed by the Pioneer and Gladstone districts, 289 tons by the Ringarooma, Derby, and Branhholm districts, and small quantities from Moorina district and Straits Islands. The next highest output was returned from the North-Western division with 381 tons, to which the celebrated Mt. Bischoff contributed 296 tons, and the Mt. Bischoff Extended, 69 tons. In the Eastern division, the Avoca mines produced about 109 tons out of a total of 200 tons. The mines in the Western division produced 124 tons of metallic tin in 1920, the highest contributors being the Federal with 38 tons, Heemskirk 29 tons, and Dreadnought Boulder 21 tons.

(vi) *Northern Territory.* The yield of tin ore in 1920 amounted to 180 tons, valued at £27,610, of which the Marranboy field contributed 180 tons, valued at £9,151, and Mt. Wells about 33 tons, valued at £5,051. Small yields were returned also from Crest of Wave, Horseshoe Creek, Hayes Creek, Umbrawarra, and other districts. Two batteries for the treatment of tin ore have been erected by the Government, one at Marranboy, costing £20,163, and one at Hayes Creek, at an expense of £3,294.

3. World's Production of Tin.—According to *The Mineral Industry* the world's production of tin during each of the last five years was as follows. The figures have been slightly amended since last issue.

WORLD'S TIN PRODUCTION, 1916 TO 1920.

1916.	1917.	1918.	1919.	1920.
Tons. 115,306	Tons. 125,223	Tons. 122,513	Tons. 116,385	Tons. 119,211

The yields from the chief producing countries in each of the last three years were as follows :—

	1918.	1919.	1920.
Malaya ..	37,300 ..	36,900 ..	34,900
Bolivia ..	29,300 ..	28,900 ..	29,500
Banka ..	13,200 ..	12,000 ..	14,000
Siam ..	9,100 ..	8,800 ..	9,000 (a)
Cornwall ..	4,000 (a) ..	3,300 (a) ..	2,900
Billiton ..	7,500 (a) ..	7,400 (a) ..	7,500 (a)
Nigeria ..	6,000 (a) ..	5,000 (a) ..	5,200
China ..	8,700 (b) ..	8,300 (b) ..	8,000 (a)
Australia ..	4,700 (c) ..	4,300 (c) ..	4,200 (c)
South Africa ..	1,200 ..	1,000 ..	1,500
India ..	1,000 (a) ..	500 (a) ..	1,200 (a)

(a) Estimate. (b) Shipments to Europe and U.S.A. (c) According to returns furnished by the Australian Metal Exchange the figures for Australia for the three years were 4,600, 4,100, and 4,100 tons respectively.

Based on the results for the last three years, Australia's share of the world's tin production would appear to be about $3\frac{1}{2}$ per cent.

4. **Prices of Tin.**—The average price of the metal in the London market for the years 1897 and 1907 and from 1911 to 1920 was as follows:—

PRICE PER TON OF TIN, 1897 TO 1920.

Year.			Price per Ton.	Year.			Price per Ton.
			£ s. d.				£ s. d.
1897	..	..	81 8 0	1915	..	..	164 4 0
1907	..	..	172 12 9	1916	..	..	182 3 5
1911	..	..	192 7 0	1917	..	..	237 13 1
1912	..	..	209 8 5	1918	..	..	329 11 2
1913	..	..	206 5 7	1919	..	..	257 9 8
1914	..	..	156 12 7(a)	1920	..	..	296 1 7

(a) Quotations incomplete.

According to *The Mineral Industry* the monthly average in December, 1917, reached £298 10s. 3d. per ton. Conditions in 1917 were, however, quite abnormal, and, instead of London prices ruling the market, each consuming country tended to fix its own rates, with the result that widely different quotations were recorded from London, New York, France, and Italy. Owing to various causes such as shortage of labour, plant, and supplies, increases in wages, difficulty of obtaining information as to the relative position in the producing centres, interference with the ordinary course of trade, etc., prices in 1918 mounted to phenomenal heights. Quotations in January averaged £293 6s. 1d. per ton and increased rapidly until May when the price reached £364 7s. 8d. A falling-off in the next two months was succeeded by a rise to the sensational figure of £380 16s. 8d. in August. Thenceforward a sharp decline was experienced, and for the closing month of the year the average was recorded as £267 14s. 3d. In January, 1919, the average price was given as £248 9s. 11d., but the market fell in the succeeding months until July, when there was a rise to £253 5s. 1d. An upward tendency was manifested in the latter months of the year, the average for December being £314 5s. 1d. The year 1920 opened with an average in January of £376 12s. 9d., but in February the price reached the tremendous figure of £395 16s. 6d. Thereafter prices fell considerably until June, when £250 18s. 6d. was realised. An upward tendency was manifested until August, when the average stood at £274 5s. 10d., but the closing months of the year were characterized by a heavy fall, the December price, £212 11s. 8d., being much lower than in any preceding month during the last three years.

5. **Employment in Tin Mining.**—The number of persons employed in tin mining in 1901 and during the last five years is shewn below:—

PERSONS ENGAGED IN TIN MINING, COMMONWEALTH, 1901 AND 1916 TO 1920.

Year.	N.S.W.	Victoria.	Qld.	W. Aust.	Tas.	Nor. Ter.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.
1901	1,428	..	1,148	413	1,065	..	4,054
1916	1,938	135	1,093	235	1,217	154	4,772
1917	1,779	42	878	211	1,311	151	4,372
1918	2,352	52	1,110	292	1,260	190	5,256
1919	2,171	38	1,114	209	1,303	190	5,025
1920	1,822	48	920	187	1,318	120	4,415

§ 7. Zinc.

1. Production of Zinc.—The production of zinciferous concentrates is practically confined to the Broken Hill district of New South Wales, where zincblende forms one of the chief constituents in the enormous deposits of sulphide ores. During the earlier years of mining activity on this field a considerable amount of zinc was left unrecovered in tailings, but from 1909 onwards improved methods of treatment resulted in the profitable extraction of the zinc contents of the accumulations at the various mines.

As the metallic contents of the bulk of the concentrates, etc., raised in the Broken Hill District are extracted outside New South Wales, the mineral industry of that State cannot be credited with the value of the finished product. The figures given hereunder, therefore, refer to the quantity and value of the zinc concentrates actually exported during the years specified.

NEW SOUTH WALES.—EXPORTS OF ZINC CONCENTRATES, ETC., 1889 TO 1920.

Year.	Quantity of Zinc Concentrates, etc., Exported.	Value.	Year.	Quantity of Zinc Concentrates, etc., Exported.	Value.
	Tons.	£		Tons.	£
1889	97	988	1917	113,531	441,486
1891	219	2,622	1918	87,019	295,413
1899	49,879	49,207	1919	72,294	247,395
1916	209,741	961,849	1920	71,043	249,456

A statement of the quantity of zinc locally extracted, and the estimated zinc contents of concentrates exported during the five years 1917 to 1921, will be found in § 18 hereinafter.

At the Silver Spur mine at Texas, in the Stanthorpe division of Queensland, part of the ore is high in zinc and lead, but low in silver. Profitable extraction of the zinc and lead depends, however, on railway connexion with the mine. Zinc sulphide is produced by the Mount Garnet Mine in the Herberton district, and during 1916 several hundred tons of good quality ore were raised, but until a suitable treatment plant has been erected, it is stated that production cannot be economically undertaken.

During the year 1916, a small quantity of zinc, valued at £630, was produced in Western Australia, but there was no production recorded for subsequent years.

The Tasmanian mineral returns for 1920 included an item of 9 tons of zinc ore, valued at £334, raised at the Swansea Mine, near Zeehan.

Investigations in regard to the Read-Roseberry zinc-lead deposits in Tasmania have proved the existence of 1,680,900 tons of ore, which, added to an estimated quantity of 915,000 tons of "probable" ore, make a total supply of 2,595,000 tons. It is stated that the metallurgical treatment of the ore can be successfully carried out, and that the deposits are amongst the richest and most important in the world.

2. Prices of Zinc.—During the four years 1911 to 1914, the price of zinc averaged £23 15s. per ton, ranging from £21 in 1914 to £26 3s. 4d. in 1912. Owing to the heavy demand and other circumstances arising out of the war, the prices in 1915 and 1916 reached the very high average of £67 11s. 1d. and £72 1s. 5d. per ton respectively. For 1917 the average recorded was £52 8s. 3d., for 1918, £54 3s. 7d., for 1919, £42 17s. 7d., and for 1920, £44 7s. 5d. per ton.

§ 8. Iron.

1. General.—The fact that iron-ore is widely distributed in the Commonwealth has long been known, and extensive deposits have been discovered from time to time at various places throughout the States. It will appear, however, from what is stated below, that until quite recently, little has been done in the way of converting these deposits into a marketable commodity.

(i) *The Manufactures Encouragement Act 1908-14.* It was hoped that the passing by the Commonwealth Parliament of the Manufactures Encouragement Act, which came into force on the 1st January, 1909, would assist in firmly establishing the iron industry in Australia on a remunerative basis, both in the smelting of pig iron and in the production of bar iron and steel from Australian ore. The Act referred to, together with its amendment in 1912, provided for the payment up to June, 1914, of bounties of 12s. per ton on Australian pig iron, puddled bar iron, and steel, and of 10 per cent. on the value of galvanized sheet or plate, wire netting, wire, and iron or steel pipes and tubes. During the period from 30th June, 1909, to 30th June, 1915, a sum of £173,671 was paid in connexion with these bounties. (For details see Official Year Book No. 11, p. 452.)

(ii) *The Iron Bounty Act 1914-15.* This Act repealed the Manufactures Encouragement Act 1908-14, and provided for a bounty on Australian pig iron up to the end of 1916. The rate of bounty was 8s. per ton, and the total amount authorized £60,000. Provision was made for transfer, if required, to the State, of lands, buildings, etc., used in the manufacture of pig iron. During the three years 1915 to 1917 the respective bounties amounted to £19,808, £24,465, and £11,454, and the corresponding tonnages of pig iron to 49,520, 61,162, and 28,635 tons. New South Wales is the only State where bounty has been claimed.

(iii) *The Iron and Steel Bounty Act 1918.* This Act provides a total sum of £200,000 payable up to the 30th September, 1923, by way of bounty on black steel sheets and galvanized sheets. When the rate of freight from the United Kingdom to Australia is £2 10s. per ton or under, the bounty on black steel sheets is £1 10s. per ton, and on galvanized sheets £2 per ton, including the bounty (if any) paid on the black steel sheets from which the galvanized sheets are made. These bounties are decreased accordingly when the freight rises above £2 10s. per ton. At the end of 1921 bounty to the amount of £5,150 was paid on 4,898 tons of galvanized sheets.

2. Production of Iron.—(i) *New South Wales.* Reference to the extent of the deposits of iron ore in the State, and the events leading up to the establishment of iron-works at Lithgow, will be found in earlier issues of the Year Book (see No. 3, p. 508). During 1920 the following materials were received at the blast furnace at the Eskbank Iron Works, Lithgow :—Iron ore, 158,746 tons ; limestone, 63,562 tons ; and coke, 126,516 tons. The iron ore was raised from quarries at Tallawang, Cadia, and Carcoar, and the output was 86,096 tons of pig iron.

The following table shews the quantity and value of pig iron, produced in New South Wales, during the last seven years from locally-raised ores only :—

NEW SOUTH WALES.—PRODUCTION OF IRON (LOCAL ORE), 1914 TO 1920.

Particulars.		1914.	1915.	1916.	1917.	1918.	1919.	1920.
Quantity ..	Tons	75,150	76,318	52,556	45,025	68,072	80,941	86,096
Value ..	£	254,257	267,000	197,085	247,637	350,000	445,175	645,720

The figures quoted above refer to production from *local* ores only, and as such credited to the New South Wales mineral industry. They do not, of course, represent the total production of pig iron in New South Wales, since, as shewn in the succeeding paragraph, a considerable quantity of ore raised in South Australia and credited therefore to the mineral returns of that State is treated in New South Wales.

The Broken Hill Proprietary Company established works for the manufacture of iron and steel on a large scale at Newcastle, and operations were started early in 1915. The Company is utilising the immense deposit of iron ore at the Iron Knob quarries in South Australia, which are connected with the seaboard at Whyalla, a distance of about 36 miles, by the Company's tramway. The ore quarried for the year ending December, 1921, amounted to 463,578 tons. Extensive limestone works and loading bin at Devonport, Tasmania, as well as quarries in New South Wales for dolomite, magnesite, etc., are also owned by the Company. The limestone quarried in 1921 amounted to 95,268

tons. The steel works consist of three blast furnaces of a nominal daily producing capacity of 1,200 tons, and a fourth furnace of 100 tons for the production of foundry iron. The output of pig iron for the year amounted to 262,312 tons. With seven 65-ton open hearth steel furnaces, the present output is over 3,400 tons weekly. The actual output of steel ingots during 1921 was 255,437 tons. The works are supplied with a 28-in. bloom and rail-rolling mill, able to deal with 500 tons of finished rails daily. There are also in operation an 18-in., 12-in., and 8-in. mill for merchant steel, as well as a rod mill for production of rods for wire drawing capable of an output of 350 to 400 tons of rods per week down to size No. 5 (.212 of an inch). The output from the mills during the twelve months ending 1921 was as follows:—

Rails	79,525 tons
Billets and Blooms ..	9,286 "
Fishplates	2,475 "
Structural Steel ..	20,162 "
Round and Octagon Steel ..	19,865 "
Flat Steel.. ..	24,608 "
Plates	950 "
Square Steel	1,591 "
Rods	31,117 "
Rabble Bars	996 "
Locking Bars	993 "
Miscellaneous	1,188 "
Total	192,756 tons

The Company is producing its own coke for the furnaces, having already 214 by-products ovens in operation. Coke produced for the year amounted to 256,899 tons. The tar and sulphate of ammonia produced during 1921 amounted to 2,561,718 gallons and 4,081 tons respectively.

A quantity of iron oxide is purchased by the various gasworks for use in purifying gas, and it is also to some extent employed as a pigment, the output in New South Wales being drawn chiefly from the deposits in the Port Macquarie, Moss Vale and Yass Divisions. During 1920 the iron oxide raised amounted to 1,574 tons, valued at £1,247. The smelting companies utilise a certain amount of ironstone for fluxing purposes, the quantity so used in 1920 amounting to 2,881 tons, valued at £3,726.

(ii) *Victoria.* Iron ore has been located at various places in Victoria, particularly at Nowa Nowa, in the Gippsland district, and at Dookie. A blast furnace was erected in 1881 near Lal Lal, on the Moorabool River, and some very fair quality iron was produced, which was used for truck wheels and stamper shoes at the Ballarat mines. The fall in the price of the metal, however, led to the closing of the works. In his report for 1905 the Secretary for Mines states that without special assistance to the industry there does not seem to be any prospect of the deposits being profitably worked.

(iii) *Queensland.* Queensland possesses some extensive deposits of iron ore, which are mined chiefly for fluxing purposes in connexion with the reduction of gold and copper ores. During the year 1920, 19,709 tons of ironstone flux, valued at £24,852, were raised, the bulk of which came from Iron Island in the Rockhampton district. It is stated that Queensland possesses within its own borders an abundance of the ore, fuel, and fluxes required for the carrying on of a large ironworks.

(iv) *South Australia.* South Australia possesses some rich deposits of iron ore capable of being mined for an indefinite period. The best known deposit is the Iron Knob, a veritable hill of iron ore of high percentage, situated about 40 miles W.S.W. from Port Augusta. The estimated quantity of iron ore in sight at the Iron Knob and Iron Monarch has been set down at 21,000,000 tons. The Broken Hill Company utilises ore from this quarry at its ironworks at Newcastle, New South Wales, and the amount raised for the year 1920 was 413,038 tons, valued at £478,436.

(v) *Western Australia.* This State has some very rich deposits of iron ore, but owing to their geographical position the most extensive fields at the present time are practically unexploited, the production in the State being confined chiefly to that needed for fluxing purposes. The Murchison field possesses some extensive deposits of high-grade ore. There are also deposits on Koolan Island and Cockatoo Island at Yampi Sound, and leases on the latter island have been purchased by the Queensland Government. The production of pyritic ore reported in 1920 amounted to 6,020 tons, valued at £7,276.

(vi) *Tasmania.* The amount of ore available in the principal iron-ore deposits in Tasmania has been estimated as follows:—

	Tons.
Blythe River Lode	17,000,000
Dial Range and Penguin	700,000
Beaconsfield and Anderson's Creek	1,300,000
Long Plain	20,000,000
Zeehan District	2,900,000
Nelson River	Unknown
Total	41,900,000

The total production of iron ore in 1908 was 3,600 tons, valued at £1,600, all raised by the Tasmanian iron mine at Penguin, but owing to the closing down of that mine in 1909 there has been no further production. Iron pyrites for the manufacture of sulphuric acid and of manures is produced on the West Coast, the quantity raised in 1920 being 4,440 tons, valued at £7,346. High grade paints are manufactured from oxides obtained in the Beaconsfield district.

(vii) *Northern Territory.* Large bodies of rich ironstone have been discovered in various parts of the Territory, particularly between the Adelaide River and Rum Jungle. Owing to the lack of local coal, however, the deposits possess no immediate value.

(viii) *World's Production of Iron and Steel.* The Australian production of iron and steel at present forms a very small proportion of the world output. According to *The Iron Trade Review* the world's production of pig iron in the year 1913 was estimated at roughly 77 million tons; in 1920 at 61 million, and in 1921 at 36 million tons. During each of the three years specified the respective shares of the principal producing countries were as follows:—United States, 31, 36, and 17 millions; Germany, 19, 6½, and 7½ millions; and Great Britain, 10, 8, and 3 millions. The world's steel production for the same three years was estimated at 75, 68, and 41 million tons. To these totals the United States contributed 31, 42, and 20 millions; Germany, 19, 8, and 9 millions; and Great Britain, 8, 9, and 4 million tons.

§ 9. Other Metallic Minerals.

1. *Antimony.*—This metal is widely distributed in the north-eastern portion of New South Wales, between the 148th meridian and the coast, and has been found native at Lucknow, near Orange. Dyscrasite, a silver antimonide, has been found in massive blocks in the Broken Hill lodes. The production of antimony (metal and ore) in 1920 amounted to 200 tons, valued at £2,505. The ore is raised mainly in the Hillgrove division, where it is found in association with scheelite and gold. During the year prospecting was carried on in the Copmanhurst, Drake, and Kempsey divisions. The total quantity of antimony (metal and ore) raised in New South Wales up to the end of 1920 was 18,907 tons, valued at £343,888. The production of antimony concentrates in Victoria during 1920 amounted to 961 tons, valued at £14,238. The whole of the production came from ore raised by a company operating at Costerfield. In Queensland extensive deposits are found at Neerdie, in the Wide Bay district, at Wolfram Camp, on the Hodgkinson field, on the Palmer River in the Ravenswood district, and at various places in the Herberton district. Ore has also been obtained in the Dividing Range near Herberton, and adjacent to some of the central tributaries of Emu Creek. Owing

to the low price of the metal in 1919 production was practically negligible; while none was recorded in 1920. In Western Australia lodes of stibnite carrying gold have been found in the Roeburne district. During 1917, 12 tons of antimony, valued at £258, were exported, but there was no subsequent production until 1920, when 2 tons, valued at £45, were exported.

2. Arsenic.—In New South Wales, deposits of arsenical ore have been located at various places, but production in 1920 was small, amounting to 70 tons, valued at £2,840. The bulk of this was raised at the Ottery mine, in the Emmaville division, and small quantities were won in the Tumut and Young divisions. During 1917 the high price ruling for arsenic, and the urgency of the need for supplies in connection with the destruction of prickly pear, led to the reservation by the Queensland Mines Department of an extensive area of arsenic-bearing deposits at Jibbinbar, in the Stanthorpe district. During 1920, 285 tons were produced at the State mine; while the Sundown mine in the same district returned an output of 20 tons. There has been a strong demand for the product not only for the destruction of prickly pear but for the manufacture of arsenical dip solutions and other purposes. In South Australia attention is being devoted to arsenic-bearing minerals at Woodside, at Westward Ho, near Mannahill, and on Kangaroo Island. During 1920 Western Australia exported 1,765 tons of arsenical ore, valued at £4,260. In the form of arsenopyrite, arsenic is of wide distribution in Victoria, but the deposits are worked to a limited extent only. At Ballarat a small quantity of the oxide is obtained from the flues of roasting furnaces.

3. Bismuth.—Ores of this metal have been found in New South Wales, near Glen Innes, in the Deepwater division, and at Whipstick, in the Pambula division, its discovery dating from 1877. Deposits are also found in the Oberon, Tenterfield, Young, Gundaroo, Emmaville, and Torrington divisions. About 76 tons of metal and ore, valued at £33,886, were exported from New South Wales during 1920; the total quantity exported to the end of that year was 760 tons, valued at £222,928. In Queensland wolfram and bismuth have been found in various districts, but the chief centres of production in 1920 were the Herberton and Chillagoe fields. The total production for the year was valued at £19,313, of which 81 tons, valued at £14,027, was returned as wolfram, 21 tons, valued at £530, as bismuth, and 49 tons, valued at £4,756, as bismuth and wolfram. In South Australia, deposits are found at Balhannah, at Mount Macdonald, and at Murninnie, on the shores of Spencer's Gulf. A small quantity of bismuth was exported from Western Australia in 1919, but none was recorded in 1920. In Tasmania 2 cwt., valued at £9, were raised in 1920 by the All Nations mine at Middlesex.

Production of bismuth was restricted in 1920 by the collapse in market values, and the difficulty in disposing of the product.

4. Chromium.—In New South Wales chromium is found at Bowling Alley Point, on the Peel River, at Barraba, at Manilla, at Gordon Brook, in the Clarence River district, at Bingara, Wallendbeen, and near Gundagai. The production during recent years has been small, the quantity raised in 1920 being 1,460 tons, valued at £5,090, of which 1,420 tons, valued at £5,000, were raised at Gobarralong, in the Gundagai division, and the balance in the Bingara division. Profitable mining in the last-mentioned area is handicapped by distance from the railway. Chrome iron ore is found in Queensland in the Rockhampton district, and about 160 tons were raised in 1920 by the Mount Morgan Company at Glen Geddes.

5. Cobalt.—This metal was found at Carcoar in New South Wales in 1889, and subsequently at Bungonia, Port Macquarie, and various other places. There was no export of cobalt since 1911, and the total produced since 1860 amounted in value to only a little over £10,000. Deposits have been noted in Queensland at Selwyn in the Cloncurry area; in South Australia near Bimbourie and South Blinman; in Western Australia at Norseman and Kanowna; and at various places in Victoria. A trial parcel of 50 tons of ore from the Selwyn area was sent to England in 1920.

6. Lead.—This metal was first noted in New South Wales in 1849, when small specimens of native metal were found by the Rev. W. B. Clarke. At present lead mining *per se* is not practised to any extent in the Commonwealth, the supply of the metal being

chiefly obtained in conjunction with silver. In New South Wales, lead in the form of pig, carbonate, and chloride exported in 1920, amounted to 413 tons, valued at £9,905. The total lead exported to the end of 1920 was 298,000 tons, valued at £5,785,000. As stated previously, the metallic contents of the major portion of the silver lead ores are extracted outside New South Wales, and these figures refer only to lead values assigned as the produce of the State. The very low yield in 1920 was due to the cessation of operations at Broken Hill for the major portion of the year. In Victoria, oxides, sulphides, and carbonates of lead are found in the reefs of most of the goldfields. The deposits are not, however, of sufficient extent to repay the cost of working. In Queensland the deposits are worked chiefly for the silver, copper or gold contents of the ore, the lead produced in 1920 amounting to 1,709 tons, valued at £65,098. Of this total the Chillagoe area produced 1,070 tons, valued at £40,795. From the lead ores in the Herberton and Etheridge districts the yields obtained amounted to 313 tons and 128 tons respectively. At one time South Australia produced a fair amount of lead, £22,303 worth being raised in 1902, but the production rapidly decreased, and no output has been recorded since 1910. During 1920 pig lead exports from Western Australia amounted to 1,930 tons, valued at £69,136. Tasmanian lead production in 1920 was returned as 3,856 tons, valued at £142,268, of which the Zeehan mines contributed 1,241 tons, the Mt. Farrell mines, 1,349 tons, Magnet, 601 tons, and Round Hill mines, 665 tons.

7. **Manganese.**—Ores of this metal occur in widely separated districts in New South Wales, but the low price of the metal in past years precluded mining to any great extent, and the production to date has been small. During 1920, 2,531 tons, valued at £2,008, were raised, chiefly in the Grenfell division. Small quantities were also raised in the Parkes and Bathurst divisions. In Queensland there are extensive deposits at Mount Miller, near Gladstone, in the country to the west and south-west of Gympie, and in the Stanthorpe district. The manganese from the Amamoor mine, about 18 miles from Gympie, is of good quality, and commands a ready sale, but disposal of the product is handicapped by difficulty of transport from the mine to the railway. During 1920, 15 tons, valued at £60, were produced. Small quantities of manganese ore were raised in Victoria during 1916 from mines in the vicinity of Heathcote. Extensive deposits of the ore were mined at Boolcunda in South Australia some years ago. Deposits are being actively worked at the present time at Pernatty, Hawker, and Gordon. The production in 1920 was valued at £4,626. In Western Australia ores of the metal are found widely scattered, the black oxide being especially plentiful in the Kimberley district. It is proposed shortly to exploit the extensive deposits existing in a locality 18 miles north-west from Peak Hill. Large deposits in the northern part of the Cue district cannot at present be profitably worked owing to absence of cheap transport facilities.

8. **Mercury.**—In New South Wales mercury was first recorded by the Rev. W. B. Clarke in 1841. Cinnabar has been found in lodes and impregnations at various places, such as Bingara, Clarence River, etc. Up to the present the production of quicksilver has been small, the total being only about 3,000 lbs. During 1916 the Pulganbar Company raised 200 tons of ore from their mine at Ewengar in the Drake division. The mercury produced was valued at £180. There was no production recorded in the years 1917 to 1920. In Victoria native mercury and cinnabar have been found at Silver Creek, a tributary of the Jamieson River. Lodes of cinnabar have been found in Queensland at Kilkivan, and at Black Snake, in the Wide Bay district; about four tons were produced between 1874 and 1891. Between O.K. and Mungana several shows have been prospect- ed with encouraging results. Small quantities have been found disseminated over a large area near Willunga in South Australia, and the metal is also found in New Guinea.

9. **Molybdenum.**—In New South Wales molybdenite (associated with bismuth) is obtained at Kingsgate, near Glen Innes, at Deepwater, at Rocky River in the Tenterfield division, in the Bathurst division, and at Whipstick in the Pambula division, the production in 1920 being 40 tons, valued at £8,442, as compared with 66 tons, valued at £30,308, in the previous year. Production in 1920 fell away owing to the lack of demand for the product after the expiry of the contract between the Commonwealth and Imperial Governments. In Victoria 48 tons of molybdenite, valued at £3,616, were raised in 1920 at Egerton and Korong Vale. The production in Queensland for 1920 was 29 tons,

valued at £13,333, the bulk of which was raised on the Chillagoe field, while small quantities were produced in the Mount Perry and Star River areas. The Wombah mine near Mount Perry is regarded by geologists as one of the most promising molybdenite producers in Australia. A small quantity was produced in 1914 from the mines in the Moonta district in South Australia, and the occurrence of the metal is reported from various other localities. At the Yelta mine bunches of the ore are scattered through the copper ore, and the molybdenite is picked out during the dressing of the copper ore. The yields for the last three years were, however, trifling. Molybdenite occurs in small quantities at various localities in Western Australia, the production in 1920 being, however, practically negligible. In the Northern Territory, molybdenite is found at Yenberrie, where it is stated that the ore increases in richness as the workings become deeper.

10. **Radium.**—(i) *General.* It is reported that there have been several definite discoveries in Australia of the occurrence of minerals containing radium. A discovery of carnotite, which is an alteration product of pitchblende, the compound from which radium is obtained, was made in 1906, 20 miles E.S.E. of the Olary railway station, in South Australia. In 1910 pitchblende was identified in portion of the workings at Olary, and a specimen exhibiting a high degree of radio-activity was obtained. This is the first authentic discovery of the mineral pitchblende in Australia. The deposits of radio-active uranium ores found at Radium Hill were mined some years ago, and the concentrates forwarded to Sydney for treatment at the company's works at Woolwich. As noted in (ii) below, operations are at present at a standstill. Monazite from Pilbara, Western Australia, has been shewn to give off radium emanations. The mineral has been called "pilbarite." Lastly, it is stated that the ores obtained at the Moonta mines, South Australia, contain from one-tenth to one-fifteenth of the amount of radium found in high-grade pitchblende, and that a product having a fairly high degree of radio-activity can be extracted therefrom with comparative ease. During 1918 radio-active ore to the value of £686 was raised in South Australia, but there was no production recorded in 1919 and 1920.

(ii) *Production of Radium Bromide.* At the end of November, 1912, a small quantity of radium bromide was produced at the Radium Hill Co.'s works at Woolwich, Sydney, this being the first occasion on which a marketable amount of this salt has been obtained outside of Europe. It was estimated by the chemist in charge that the plant at the works was capable of providing £600 worth of radium weekly. From the 30th June, 1913, to the end of May, 1914, the works produced 239 milligrams of high-grade radium preparation. The industry, however, has since remained inactive.

11. **Tungsten.**—Wolfram and scheelite, the principal ores of tungsten, are both mined to some extent in New South Wales, but the fall in prices in 1920 reduced the output almost to vanishing point. The production of wolfram was 14 tons, valued at £2,212, and of scheelite 21 tons, valued at £3,805. Wolfram was mined chiefly in the Torrington division of the New England district, and scheelite in the Hillgrove area. In Victoria the production of wolfram was returned in 1920 as $7\frac{1}{2}$ tons, valued at £355, yields being obtained at Mount Murphy and the Tambo River. In Queensland, tungsten ores are found in several districts, the chief centres of production in 1920 being Chillagoe and Herberton. (See also "Bismuth.") A deposit of wolfram was discovered near Yankalilla, in South Australia, as far back as 1893, but the production up to date has been small. It is believed that careful examination will lead to increased production from the deposits at Callawonga Creek. In the Northern Territory wolfram to the value of £45,648 was obtained in 1919–20, chiefly from Hatches Creek, Wauchope Creek, Wolfram Creek, Hidden Valley, and Yenberrie. Numerous samples of good wolfram ore have been obtained at the Frew River in Central Australia.

In Western Australia 3 tons of scheelite, valued at £395, were exported in 1920. Production was reported from the North Coolgardie, Coolgardie, Broad Arrow, and Dundas fields. Wolfram is mined at various points in Tasmania, the production for 1920 being 71 tons, valued at £13,626, obtained chiefly at the Avoca mines. Scheelite has been discovered on King Island in Bass Strait, and as a result of operations 199 tons of concentrates of an estimated value of £43,181 were produced in 1919. The low price obtainable for the product in 1920 led to the suspension of operations in the latter half of the year, and the yield was returned as 105 tons, valued at £17,905.

12. **Tantalum.**—Tantalite in small quantities has been found in the Greenbushes mineral field of Western Australia for some time past, but recently a lode of fairly extensive proportions was located at the Wodgina tinfield. Up to the end of 1905 the production of this mineral in Western Australia amounted to 73 tons, valued at about £10,000, but early in 1906 it was found that the supply exceeded the demand, and production was temporarily stopped; in 1908 a small quantity valued at £400 was exported. About £327 worth was reported as having been raised in the Greenbushes and Pilbara fields during 1909, but none was exported owing to the entire absence of any market. No further production was recorded until 1916, when 47 tons, valued at £9,375, were exported, consisting of ore which had been raised some years previously at Wodgina. In the Pilbara field. The export in 1917 amounted to 17 tons, valued at £2,513, but there was no record of production in 1918, while the export in 1919 dwindled to £75, and none was recorded in 1920. Small quantities of the mineral are also found in the Northern Territory.

13. **Uranium.**— This mineral has been discovered in South Australia in the country between Mount Painter and Mount Pitts, about 80 miles east from Farina. The uranium ores occur most frequently in the form of torbernite and autunite, and are found over a considerable area. The discovery is therefore of considerable importance, since ores of this mineral are found to a very limited extent in other parts of the world, and radium is regarded as one of the products of disintegration of uranium.

In addition to the metals enumerated above there is a large number of others occurring in greater or less degree, while fresh discoveries are being constantly reported.

(B) NON-METALLIC MINERALS.

§ 10. Coal.

1. **Production in each State.**—(i) *Historical.* A historical account of the discovery of coal in each State will be found in preceding issues of the Year Book. (See No. 3. pp. 515-6.)

(ii) *New South Wales.* The production in 1920 amounted to 10,715,999 tons, valued at £7,723,355, or an increase of about 2,084,000 tons in quantity and of £2,301,000 in value, as compared with the output in 1919. From the collieries in the Northern district the output in 1920 was 7,320,510 tons; the Southern district supplied 1,902,889 tons; and the Western 1,492,600 tons. The total production for 1920 constitutes a record: the nearest approach to it being that for 1913, when 10,414,165 tons were raised.

(iii) *Victoria.* During 1920 the production amounted to 442,241 tons of black coal, valued at £464,739, and 162,682 tons of brown coal, valued at £64,180. Of the total output, 367,285 tons of black coal were raised by the State coal mine at Wonthaggi, and 162,682 tons of brown coal from the State brown coal mine at Morwell. The production of black coal for 1920 was about 18,000 tons, and of brown coal over 51,000 tons, in excess of that in the preceding year.

(iv) *Queensland.* The quantity of coal raised in 1920 was 1,109,913 tons, valued at £841,551, this production being about 178,000 tons in excess of that in the preceding year. The increase was shared in by all the coal-producing districts except Maryborough, where there was a slight falling off in quantity, but an improvement in the value of the output. Twenty-nine collieries were working in the Ipswich district, 5 on the Darling Downs, 5 in the Maryborough district, 4 in Rockhampton district, 5 at Clermont, 1 at Bowen (State colliery), and 1 at Mount Mulligan in the Chillagoe district. The industry is at present in a very satisfactory position in the northern State, and owing to the wide area over which the deposits stretch, practically no limit can be set to its possibilities of extension.

(v) *Western Australia.* Five collieries were in operation on the Collie field during 1920, and the output for the year was 462,021 tons, the largest on record, and about 60,000 tons more than in 1919.

(vi) *Tasmania.* The principal collieries in Tasmania are the Cornwall and Mount Nicholas, the former producing 38,000 and the latter 29,000 tons out of a total yield in 1920 of 75,000 tons.

The quantity and value of coal produced in each State and in the Commonwealth at various periods since 1881 are shewn in the following table :—

PRODUCTION OF COAL, AUSTRALIA, 1881 TO 1920.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
QUANTITY.							
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1881	1,769,597	3	65,612	..	..	11,163	1,846,375
1891	4,037,929	29,156	271,603	..	..	43,256	4,381,944
1901	5,968,426	209,479	539,472	..	117,896	45,438	6,880,651
1916	8,127,161	420,098	907,727	..	301,526	55,575	9,812,087
1917	8,292,867	505,364	1,048,473	..	320,550	63,412	10,236,666
1918	9,063,176	505,775	983,193	..	337,039	60,163	10,349,346
1919	8,641,554	535,573	931,631	..	401,713	66,253	10,566,724
1920	10,715,999	604,923	1,109,913	..	462,021	75,429	12,968,285
VALUE.							
	£	£	£	£	£	£	£
1881	603,248	3	29,033	..	..	5,581	637,865
1891	1,742,796	21,404	128,198	..	..	21,628	1,914,026
1901	2,178,929	147,228	189,877	..	68,561	18,175	2,602,770
1916	3,336,419	216,875	389,348	..	147,823	27,736	4,118,201
1917	4,422,710	345,830	597,300	..	191,822	38,073	5,596,425
1918	4,941,807	367,640	572,305	..	204,319	37,676	6,123,747
1919	5,422,846	406,617	614,307	..	270,355	47,004	6,761,129
1920	7,723,355	528,919	841,551	..	350,340	64,005	9,503,176

The Victorian figures for 1920 include about 163,000 tons of brown coal, valued at £64,000, practically the whole of which was produced at the State mine at Morwell.

2. *Distribution and Quantity of Coal in each State.*—(i) *New South Wales.* Estimates have from time to time been made as to the total quantity of coal available for working in the deposits in New South Wales, and while these naturally differ to some extent, they agree in placing the amount at well over a thousand million tons, without taking into consideration the deposits existing below a depth of 4,000 feet. According to Mr. E. F. Pittman, the coal-bearing rocks of New South Wales may be classified as follows :—

COAL-BEARING ROCKS OF NEW SOUTH WALES.

Geological Age.	Maximum Thickness of Coal-bearing Strata.	Locality.	Character of Coal.
I. Tertiary—Eocene to Pliocene ..	Approx. 100 ft.	Kiandra, Gulgong, and Chouta Bay	Brown coal or lignite
II. Mesozoic—Triassic or Trias-Jura	2,500 „	Clarence and Richmond Rivers	Coal suitable for local use only
III. Palæozoic—Permo-Carboniferous	13,000 „	Northern, Southern, and Western Coalfields	Good coal, suitable for gas, household and steaming
IV. Palæozoic—Carboniferous ..	10,000 „	Stroud, Bullah Delah	Very inferior coal, with bands; of no value

In regard to the Tertiary deposits, it may be noted that no serious attempt has been made to use the coal as fuel in New South Wales. At Kiandra a deposit of lignite was found to possess a maximum thickness of 30 feet, but as a general rule the seams vary from 3 to 4 feet in thickness. The Triassic or Trias-Jura deposits in the Clarence and Richmond districts contain numerous seams, but the coal is largely intersected by bands, while its large percentage of ash renders it unfit for use as fuel for industrial purposes. These beds extend under the great western plains, but the presence of artesian water precludes the possibility of their being worked. The Clarence basin extends into Queensland, and at Ipswich thick and valuable seams of coal are worked. It is in the Permo-Carboniferous division that the great productive coal seams of the State are found, the area which they cover being estimated at about 16,550 square miles. The deepest part of the basin is somewhere in the vicinity of Sydney, where the "Sydney Harbour Colliery" worked the top seam at a depth of 2,884 feet. Towards the north, south and west the seams rise towards the surface, and outcrop in the neighbourhood of Newcastle, Bulli and Lithgow. The coal from the various districts embraced in this division differs considerably in quality—that from the Newcastle district being especially suitable for gas-making and household purposes, while the product of the Southern (Illawarra) and Western (Lithgow) is an excellent steaming coal. At the present time the Greta coal seams are being extensively worked between West Maitland and Cessnock, and this stretch of country, covering a distance of 15 miles, is now the most important coal mining district in Australasia. The Permo-Carboniferous measures have in various places been disturbed by intrusions of volcanic rocks, which in some instances have completely cindered the seams in close proximity to the intrusive masses, while in other instances the coal has been turned into a natural coke, some of which has realised good prices as fuel.

The table hereunder gives the yields from the various divisions at intervals from 1881 to 1920 :—

COAL RAISED IN NEW SOUTH WALES, 1881 TO 1920.

District.	1881.		1901.		1911.		1920.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£	Tons.	£
Northern..	1,352,472	437,270	3,999,252	1,669,519	5,793,646	2,320,673	7,320,510	5,580,455
Southern..	253,283	115,505	1,544,454	407,196	2,066,621	636,163	1,902,889	1,272,168
Western ..	163,842	50,473	424,420	102,214	331,337	210,329	1,492,600	870,732
Total ..	1,769,597	603,248	5,968,426	2,178,929	8,691,604	3,167,105	10,715,999	7,723,355

Sydney Harbour Colliery. This colliery possesses considerable interest from the circumstance that its workings are amongst the deepest in the world. Extended reference to the history of its opening will be found in preceding Year Books. (See No. 6, p. 504.)

(ii) *Victoria.* The deposits of black coal in Victoria occur in the Jurassic system, the workable seams, of a thickness ranging from two feet three inches to six feet, being all in the Southern Gippsland district. Deposits of brown coal and lignite of immense extent occur in gravels, sands, and clays of the Cainozoic period throughout Gippsland, Mornington Peninsula, Werribee Plains, Gellibrand, and Barwon and Moorabool basins. In the Latrobe Valley, the beds reach a thickness of over 800 feet. When dried, the material makes good fuel, but owing to its excessive combustibility and friability requires to be consumed in specially constructed grates. Its steaming value is equal to about half that of the Wonthaggi coal. Some large factories already have adopted brown coal for firing boilers, and there is also a fair demand for the product by householders. In 1917 an Advisory Committee appointed to report on the brown coal deposits of Victoria recommended the establishment of an open-cut mine at Morwell in connexion with a comprehensive scheme for electrical power generation and transmission, as well as for the supply of brown coal for other requirements. The recommendations of this Committee

were incorporated in the "Electricity Commissioners Act" of 1918. The Morwell deposits are now being opened up, and the product will be utilised for the generation of electricity, which will be transferred to Melbourne and, if there is sufficient demand, to other towns in Victoria. A large briquetting plant is also in course of construction. It has been stated that the deposits, as a source of energy, have no parallel in the world.

The output of coal from the chief Victorian collieries during the last ten years was as follows :—

PRODUCTION OF COAL IN VICTORIA, 1911 TO 1920.

Year.	State Coal Mine.	Outtrim Howitt Company.	Jumbunna Coal Company.	Coal Creek.	Austral Coal.	Other.	Total Pro- duction.	Value.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	£
1911	506,059	28,359	57,397	4,589	34,607	28,987	659,998	301,141
1912	455,659	24,326	53,306	4,829	31,506	23,529	593,155	259,321
1913	486,238	22,460	38,795	6,218	33,462	9,723	596,896	274,940
1914	550,107	16,597	24,236	5,887	20,034	3,390	620,251	289,099
1915	528,922	7,500	28,160	6,338	16,229	3,819	590,968	275,343
1916	354,146	..	31,792	5,688	10,885	17,587	420,098	216,875
1917	405,498	..	22,236	1,958	13,888	61,784	505,364	345,830
1918	389,794	..	16,533	2,378	15,419	81,651	505,775	367,640
1919	361,871	..	21,716	1,465	11,824	138,697	535,573	406,617
1920	376,285	..	19,644	753	12,260	195,981	604,923	528,919

Included in the total for "other" is an amount of 23,310 tons raised by the Powlett North Woolamai and 9,989 tons raised by the Sunbeam Colliery. The figures also include about 163,000 tons of brown coal raised by the State mine at Morwell.

(iii) *Queensland.* In Queensland the coal-bearing strata are of vast extent and wide distribution, being noted under the greater portion of the south-eastern districts, within 200 miles of the sea, as far north as Cooktown, and under portions of the far western interior. The Ipswich beds are estimated to occupy about 12,000 square miles of country, while the Burrum fields occupy a considerably larger area. At Callide, fifty miles west of Gladstone, a seam of coal free from bands has been struck in a shaft only 60 feet deep, and borings have proved the deposit to be of considerable magnitude. The beds in the Cook district are estimated to comprise rather more than 1,000 square miles, but coal measures extend to the south-west far beyond Laura and to the north of the railway. Extensive beds occur in the basin of the Fitzroy River, in the Broomsound district, and at the Bowen River. Amongst other places where the mineral is found may be enumerated Clermont, the Palmer River, Tambo, Winton, Mount Mulligan, and the Flinders River. Boring operations have proved the existence of seams of workable coal for some distance on both sides of the Dawson River. A bituminous coal is yielded by the Ipswich seams, those of the Darling Downs yield a cannel, while anthracite of good quality is furnished by the Dawson River beds. The seam of coal at Blair Athol has been proved in places to have a thickness of at least 93 feet, and is stated to be probably the thickest seam of black coal in the world.

The quantity and value of coal raised in Queensland at various periods since 1861 were as shewn below :—

PRODUCTION OF COAL IN QUEENSLAND, 1861 TO 1920.

Year ..	..	1861.	1871.	1881.	1891.	1901.	1920.
Quantity ..	Tons	14,212	17,000	65,612	271,603	539,472	1,109,913
Value ..	£	9,922	9,407	29,033	128,198	189,877	841,551

The distribution of production during the last three years was as follows :—

QUEENSLAND COLLIERIES, 1918, 1919, AND 1920.

Districts.	1918.	1919.	1920.
	Tons Raised.	Tons Raised.	Tons Raised.
Ipswich	678,931	620,608	763,590
Darling Downs	94,242	97,454	102,074
Wide Bay and Maryborough	62,948	63,665	61,170
Rockhampton (central)	7,955	8,350	10,522
Clermont	122,812	121,250	145,001
Bowen (State Coal Mine) .. .. .	..	376	3,914
Mount Mulligan (Chillagoe)	16,305	19,998	23,642
Total	983,193	931,631	1,109,913

The increased production in 1920 was due chiefly to the higher output in the Ipswich district, from which coal was exported overseas, in addition to a much larger quantity shipped for bunkering purposes. During the year overseas exports amounted to 52,831 tons, valued at £63,226, forwarded principally to Hong Kong, New Zealand, Straits Settlements, Madagascar, and Réunion.

Operations were commenced at the State Coal Mine on the Bowen field in March, 1919. The coal is of good quality and is well suited for coking. With the completion of the railway to the field, it is anticipated that supplies of coke will be forwarded to the smelters at Chillagoe, Irvinebank and Cloncurry, the coke for which has hitherto been obtained chiefly from New South Wales.

(iv) *South Australia.* The coal from Leigh's Creek in South Australia is subject to similar disabilities to those of the Victorian brown coal, and until some means are devised of overcoming them, production will probably languish. The deposit is situated about 370 miles by rail from Adelaide, and 160 from Port Augusta, the total extent of coal-bearing country being set down as 42 square miles. The main seam has a thickness of over 45 feet. As the result of experiments made it would appear probable that profitable use might be made of the coal in a pulverized form. Investigation is at present being made on the site of a deposit of brown coal near Moorlands on the Pinnaroo line.

(v) *Western Australia.* The coal seams in Western Australia belong to the Carboniferous, Mesozoic, and Post-tertiary ages. Most of the coal contains a large proportion of moisture, and belongs partly to the hydrous bituminous and partly to the lignite class. The only coalfield at present worked is at Collie, in the Permo-Carboniferous beds. The coal produced is bright and clean, but very fragile when free from moisture. About 293,000 tons of the total production in 1920 was taken by the railways and tramways, the balance being sold for bunkering and local trade. The production from this field since 1901 was as follows :—

PRODUCTION OF COAL IN WESTERN AUSTRALIA, 1901 TO 1920.

Year ..	1901.	1911.	1914.	1916.	1917.	1918.	1919.	1920.
Quantity Tons	117,836	249,899	319,210	301,526	326,550	337,039	401,713	462,021
Value £	68,561	111,154	148,684	147,823	191,822	204,319	270,355	350,346

In 1918 a discovery of coal was made near Wilga on the Donnybrook-Katanning railway.

(vi) *Tasmania*. In Tasmania, coal occurs in the following geological periods:—
 (1) Permo-Carboniferous: Lower Coal Measures. (2) Mesozoic: Upper Coal Measures.
 (3) Tertiary: Brown Coal and Lignite deposits. Permo-Carboniferous coal is found at Avoca, Mt. Nicholas and Fingal, Thomson's Marshes, Langloh, Seymour, York Plains, Mike Howe's Marsh, Longford, Colebrook, Schouten Island, Spring Bay and Prosser's Plains, Compton and Old Beach, Lawrenny, Longhole, Sandfly, Ida Bay, Hastings and Southport, Recherché and South Coast, Tasman's Peninsula. Deposits of lignite and brown coal are plentiful in beds of Tertiary age, but they have not been exploited to any extent. An estimate gives the approximate quantity of coal available as sixty-five million tons, of which eleven millions are in the Lower Coal Measures and fifty-four millions in the Upper Measures, exclusive of an unknown quantity in strata fringing the Central Tiers.

PRODUCTION OF COAL IN TASMANIA, 1901 TO 1920.

District.	1901.	1911.	1915.	1916.	1917.	1918.	1919.	1920.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
North-western ..	2,952	1,496	270	673	350	1,353	2,836	3,392
North-eastern ..	37,239	54,296	63,507	54,284	61,916	56,461	59,509	69,140
Midland ..	1,536	635	691	598	399	1,161	2,899	992
South-eastern ..	..	640	68	20	753	1,188	1,009	1,905
South-western ..	3,711							
Total ..	45,438	57,067	64,536	55,575	63,411	60,163	66,253	75,429

The bulk of the output in 1920 was raised from the Cornwall and Mt. Nicholas mines in the North-eastern Division, which produced 38,212 and 29,382 tons respectively.

3. *Production of Coal in Various Countries*.—The total known coal production of the world in 1920 amounted to about 1,280 million tons, towards which the Commonwealth contributed nearly 13 million tons, or over 1 per cent. The following table shows the production of the British Empire and the chief foreign countries in units of 1,000 tons during each of the five years from 1916 to 1920 where the returns are available. The figures for the British Empire and the United States are extracted from the official publications of the various countries, while those for other countries are taken from the Official Monthly Bulletin of Statistics published by the League of Nations. The production of lignite is included in those countries in which it is raised:—

COAL PRODUCTION, BRITISH EMPIRE, 1916 TO 1920.

Year.	United Kingdom.	British India.	Canada.	Australian C'wealth.	New Zealand.	Union of S. Africa.
	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.
1916 ..	256,400	17,300	12,900	9,800	2,300	8,900
1917 ..	248,500	18,200	12,500	10,200	2,100	9,300
1918 ..	227,700	20,700	13,400	10,900	2,000	8,800
1919 ..	209,800	22,600	12,200	10,600	1,800	9,200
1920 ..	231,000	..	14,800	13,000	1,800	10,200

COAL PRODUCTION, FOREIGN COUNTRIES, 1916 TO 1920.

Year.	Germany.	Belgium.	France.	Czecho-Slovakia.	Poland.	Netherlands.	Japan.	United States.
	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.	1,000 tons.
1916 ..	249,300	16,600	21,000	..	..	2,500	22,500	526,900
1917 ..	258,900	14,700	28,500	..	..	3,000	25,900	531,700
1918 ..	256,800	13,700	25,800	..	..	4,800	27,600	605,600
1919 ..	207,100	18,200	21,500	27,000	..	5,200	30,800	487,700
1920 ..	239,000	21,000	34,100	30,300	6,300	5,200	28,800	576,500

The United States returns include a large proportion of anthracite, the quantity averaging for the last five years about 80 million tons.

4. **Export of Coal.**—The exports of coal from the Commonwealth are practically confined to New South Wales.

The total quantity of coal of Australian production (exclusive of bunker coal) exported from the Commonwealth to other countries in 1920 was 2,161,344 tons, valued at £2,238,996, of which amount 2,064,515 tons, valued at £2,117,426, were exported from New South Wales, and 96,810 tons, valued at £121,569, from Queensland.

In the following table will be found the quantity and value of the exports from New South Wales, at decennial intervals since 1881 and during the last five years. The figures are given on the authority of the Mines Department of that State, and include both bunker coal and coal exported from New South Wales to other States of the Commonwealth :—

EXPORTS OF NEW SOUTH WALES COAL, 1881 TO 1920.

Year	1881.	1891.	1901.	1911.	1916.	1917.	1918.	1919.	1920.
Quantity, 1,000 tons ..	1,030	2,514	3,471	5,024	3,434	3,264	3,422	3,504	4,987
Value, £1,000	417	1,307	1,682	2,664	1,873	2,384	2,525	2,919	4,591

The principal oversea countries to which coal was exported from New South Wales during the year 1920-21 are as shown hereunder. The quantity and value refer strictly to exports, and exclude bunker coal :—

DESTINATION OF NEW SOUTH WALES OVERSEA EXPORTS OF COAL, 1920-21.

Country.	Quantity.	Value.	Country.	Quantity.	Value.
	Tons.	£		Tons.	£
Alaska	3,114	3,302	United States ..	29,903	29,865
Italy	3,723	4,049	Java	408,242	422,182
Chile	183,891	190,881	China	11,784	10,251
Straits Settlements	127,624	136,669	New Caledonia ..	30,184	29,630
Fiji	40,802	39,686	Hawaiian Islands	41,950	38,967
New Zealand ..	717,559	734,540	Norway	27,576	30,707
India	60,231	68,240	Sweden	94,588	90,512
Tonga	3,900	3,023	Ceylon	14,911	14,712
Peru	16,342	17,190	Japan	7,639	7,639
Philippine Islands	110,297	111,488	Egypt	104,593	107,430

The quantity of bunker coal taken from New South Wales by oversea vessels was about 1,518,000 tons.

The distribution of the total output from New South Wales collieries during the last five years was as follows, the particulars given of quantity exported including coal shipped as bunker coal :—

DISTRIBUTION OF TOTAL OUTPUT OF NEW SOUTH WALES COAL, 1916 TO 1920.

Year.	Exports to Australasian Ports.	Exports to other Ports.	Local Consumption.	Total.
	Tons.	Tons.	Tons.	Tons.
1916	2,203,659	1,230,439	4,693,063	8,127,161
1917	2,225,228	1,038,569	5,029,070	8,292,867
1918	2,697,033	724,643	5,641,500	9,063,176
1919	1,891,317	1,611,701	5,128,526	8,631,544
1920	2,270,556	2,716,235	5,729,208	10,715,999

The figures quoted above are given on the authority of the New South Wales Mines Department. Owing to the abolition of the record of interstate trade it is impossible to give the quantities forwarded to each of the States of the Commonwealth.

5. **Consumption of Coal in Australia.**—An estimate of the consumption of coal in the Commonwealth may be arrived at by adding the imports to the home production, and deducting the exports (including bunker coal taken by oversea vessels). The following table shews the consumption of coal in Australia, computed in the manner specified, for the last five years :—

CONSUMPTION OF COAL IN AUSTRALIA, 1916 TO 1920.

Year.	Quantity of Coal Consumed.		
	Home Produce.	Produce of Other Countries.	Total.
	Tons.	Tons.	Tons
1916	8,266,215	11,068	8,277,283
1917	8,985,599	65,312	9,051,111
1918	9,866,323	23,777	9,890,100
1919	9,036,623	64,673	9,101,296
1920	10,132,442	26,828	10,159,270

The bunker coal taken away in 1920 was estimated at 1,125,000 tons.

6. **Price of Coal.**—(i) *New South Wales.* The price of coal in New South Wales has been subject to considerable fluctuation since the date of first production. Up to the end of 1857 the average value of the total output was 11s. 10d. per ton. Next year the value had risen to nearly 15s., declining thereafter until in 1871 the price realised was 7s. From 1872 to 1879 there was a rise in value to 12s. Between 1882 and 1891 the price ranged between 8s. and 10s. From 1891 onwards there was a steady decline until 1898, when the average was 5s. 4d. Henceforward prices rose again until 1902, when 7s. 5d. was the average. A decline then set in until 1905, when the price stood at a little over 6s., followed by a rise of one penny in 1906, and a further rise of eightpence in 1907. In 1908 the average was 7s. 4d., in 1916, 8s. 2d., while in 1917 the price advanced to 10s. 8d. per ton, the highest recorded since 1879. In 1918 there was a further rise to 10s. 11d., in 1919 to 12s. 7d., and in 1920 to 14s. 5d. The price of New South Wales coal depends on the district from which it is obtained, the northern (Newcastle) coal always realising a much higher rate than the southern or western product. The average rate in each district during the last five years was as follows :—

PRICE OF COAL, NEW SOUTH WALES, 1916 TO 1920.

Year.	Northern District.	Southern District.	Western District.
	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.
1916	9 0.72	7 1.77	5 6.90
1917	11 5.14	9 11.89	7 11.92
1918	11 8.03	9 10.32	8 8.04
1919	13 5.81	11 9.64	9 4.19
1920	15 2.95	13 4.45	11 8.01

(ii) *Victoria.* In Victoria the average price of coal up to the 31st December, 1890, was 19s 3d. per ton. In 1895 the price was still as high as 12s. 2d., but in the following five years there was a serious decline, the value in 1900 being quoted at 9s. 7d. per ton. In 1901, however, there was an astonishing rise, the figure being as high as 14s. 7d. Since that year, however, the price again declined up to 1916, the average for 1905 being 10s. 2d.; for 1909, 12s.; for 1912, 8s. 9d.; for 1913, 9s. 3d.; for 1914 and 1915, 9s. 4d.; and for 1916, 10s. 4d. In 1917, however the price rose to 14s. 5d., in 1918 to 15s. 11d., in 1919 to 17s 7d., and in 1920 to 21s. per ton. These averages are exclusive of brown coal, the production of which in 1920 was valued at 7s. 11d. per ton.

(iii) *Queensland.* Prices in the principal coal-producing districts during the last five years were as follows.—

PRICE OF COAL, QUEENSLAND, 1916 TO 1920.

District.	Value at Pit's Mouth.				
	1916.	1917.	1918.	1919.	1920.
	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.	Per ton. s. d.
Ipswich	7 11	10 8	11 0	12 7	14 7
Darling Downs	9 10	12 9	13 5	14 10	16 7
Wide Bay and Maryborough	12 2	15 10	16 9	19 2	23 3
Rockhampton	9 6	11 10	12 4	13 4	16 1
Clermont	7 9	11 5	10 5	11 2	13 0
Bowen (State Coal Mine) ..	..	..	..	15 0	15 10
Mount Mulligan (Chillagoe)	13 4	15 6	16 6	17 8	19 0
Average for State ..	8 7	11 5	11 8	13 2	15 2

The readjustment of prices and wages in the industry was responsible for the increases in the averages during the last four years.

(iv) *Western Australia.* The average price of the Collie (Western Australia) coal up to the end of 1901 was 9s. 4d. per ton, the price in 1901 being 11s. 7d. In 1902 the average stood at 12s. 3d., and from that time the price fell steadily until 1906, when it was 7s. 7½d. per ton. In 1907, the average price was 7s. 8½d.; in 1908, 8s. 7½d.; in 1909, 8s. 5½d.; in 1910, 8s. 8d.; in 1911, 8s. 10d.; in 1912, 9s. 2d.; in 1913, 9s. 9d.; in 1914, 9s. 4d.; in 1915, 9s. 8d.; in 1916, 9s. 9d.; in 1917, 11s. 9d.; in 1918, 12s. 1d.; in 1919, 13s. 5d.; and in 1920, 15s. 2d. per ton.

(v) *Tasmania.* The average price per ton of coal at the pit's mouth in Tasmania was 8s. in 1901. In 1902 it was 8s. 7d.; in 1903, 8s. 9d.; in 1904 and 1905, 9s. 8d.; in 1906, 9s. 9d.; in 1907, 1908, and 1909, 8s.; in 1910, 11s. 9d.; in 1911 and 1912, 9s. 2d.; in 1913, 9s. 3d.; in 1914, 9s. 2d.; in 1915, 9s. 5d.; in 1916, 9s. 9d.; in 1917, 12s. 2d.; in 1918, 12s. 6d.; in 1919, 14s. 2d.; and in 1920, 16s. 11½d. per ton.

7. *Price of Coal in the United Kingdom.*—During the five years 1914 to 1918 the average value of coal at the pit's mouth in the United Kingdom has risen rapidly, the price in 1914 being 10s.; in 1915, 12s. 6d.; in 1916, 15s. 7d.; in 1917, 16s. 9d.; and in 1918, 20s. 11d. per ton.

8. *Employment and Accidents in Coal Mining.*—The number of persons employed in coal mining in each of the States during the year 1920 is shewn below. The table also shews the number of persons killed and injured, with the proportion per 1,000 employed, while further columns are added shewing the quantity of coal raised for each person killed and injured, this being a factor which must be reckoned with in any consideration of the degree of risk attending mining operations. A table is also added shewing the rate of fatalities during the last five years.

According to the report of the Chief Inspector of Mines for Great Britain, the average death-rate per 1,000 miners from accidents in coal mines during the quinquennium 1915–19 was 1.27, while, as shewn in the table on the next page, the rate for Australia for the quinquennium, 1916–20, was 1.14. In the United States the fatality rate per 1,000 employees, as stated in "The Mineral Industry," was 3.94 in 1918, 4.39 in 1919, and 3.63 in 1920.

EMPLOYMENT AND ACCIDENTS IN COAL MINING, 1920.

State.	Persons Employed in Coal Mining.	No. of Persons.		Proportion per 1,000 Employed.		Tons of Coal Raised for each Person.	
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales	19,965	20	113	1.00	5.66	535,800	94,800
Victoria	2,011	1	5	0.50	2.49	604,900	121,000
Queensland ..	2,379	2	9	0.84	3.78	555,000	123,300
Western Australia	830	..	94	..	113.25	..	4,900
Tasmania ..	220	..	13	..	59.09	..	5,800
Commonwealth ..	25,405	23	234	0.91	9.21	563,800	55,400

The figures for New South Wales include a small number of shale miners. Owing to lack of uniformity in the definition of "injury," the figures relating to persons injured possess little value.

The next table shews the average number of miners employed, the number of fatalities, and the rate per 1,000 during the quinquennium 1916-20 :—

MINERS EMPLOYED AND FATALITIES, COAL MINING, 1916-1920.

State.	Average No. of Coal Miners.	Average No. of Fatal Accidents.	Rate per 1,000 Employed.
New South Wales	17,860	17	0.95
Victoria	1,725	3	1.74
Queensland	2,233	4	1.79
Western Australia	640	1	1.56
Tasmania	193	..	..
Commonwealth	22,651	25	1.14

§ 11. Coke.

1. **Production of Coke.**—Notwithstanding the large deposits of excellent coal in Australia, there was, prior to the war, a fairly considerable amount of coke imported from abroad. During recent years, however, a high standard of excellence has been attained in the local product, and the necessity for import has therefore disappeared. The table hereunder gives the production in New South Wales during the last five years :—

COKE MADE IN NEW SOUTH WALES, 1916 TO 1920.

Year	1916.	1917.	1918.	1919.	1920.
Quantity tons	437,587	455,587	608,492	424,773	567,569
Value, total £	387,571	541,093	647,798	550,127	844,191
Value per ton	17s. 9d.	23s. 9d.	21s. 4d.	25s. 11d.	29s. 9d.

As the table shews, during recent years the industry has made considerable progress, and with the development of local iron and steel works, as well as metal refineries and smelting establishments, its future prospects ought to be assured.

A small quantity of coke is made in Queensland, the quantity returned in 1920 being 19,653 tons, but the bulk of that used in ore reduction is imported, mainly from New South Wales. The following table shews the amount manufactured locally during the last five years :—

QUEENSLAND.—COKE MANUFACTURED, 1916 TO 1920.

Year	..	..	..	1916.	1917.	1918.	1919.	1920.
Manufactured locally	tons			17,904	13,399	14,437	4,562	19,653

Information regarding the exact quantity of coke imported from New South Wales and elsewhere is not available.

§ 12. Oil Shale and Mineral Oils.

1. **Production of Shale.**—(i) *New South Wales.* As pointed out by Mr. E. F. Pittman, the name kerosene shale has been rather inaptly applied to a variety of torbanite, cannel, or boghead mineral found at various geological horizons in New South Wales. The mineral does not, as a rule, split in parallel layers, the fracture being rather of a conchoidal type. Pure samples have been found to contain over 89 per cent of volatile hydro-carbons. The discovery of the mineral in New South Wales dates probably as early as 1802. Its occurrence in the Hartley Vale district was noted by Count Strzelecki in 1845. The mineral has been found at several places in the Upper Coal Measures, and in at least two in the Lower Carboniferous. Production on anything like a large scale commenced in 1868, when about 17,000 tons, valued at £48,000, were raised. The production in 1920 amounted to 21,004 tons, valued at £46,082, as compared with 25,453 tons, valued at £37,968, in 1919. For 1920 practically the whole of the production came from Wogan Valley in the Western District. Up to date there has been no production of petroleum in the State, but various areas in the Dunedoo, Gunnedah, Hay, Inverell, and Sydney divisions have been taken up for the purpose of prospecting for oil.

(ii) *Victoria.* Up to the present no extensive deposit of oil shale has been located in Victoria.

(iii) *Queensland.* The discovery of natural gas and traces of oil in a deep bore at Roma has fostered the hope that energetic development will lead to the discovery of mineral oil in quantity in this locality. During 1919 the bore reached a depth of 3,705 feet, but at the latest available date further drilling operations were suspended owing to the tools getting fast in the bore early in the year. In February, 1920, a start was made with the work of attempting to recover the tools, but after using various devices without success the task was abandoned. Oil-bearing shales are common in many parts of the State. The deposit at Duinga on the Central railway line shewed a thickness of 6 feet, and contained about 30 gallons of oil to the ton. Inflammable gas and a little oil been noted in bores put down for coal on the Dawson River. There are shale deposits at Munduran Creek, near Gladstone, Casuarina Island, Redbank Plains in the Ipswich District, and Murphy's Creek, near Toowoomba. It is stated that the borings have not so far penetrated to a sufficient depth to properly test the strata for oil and gas.

(iv) *South Australia.* Bitumen is occasionally washed up on the Southern coasts of the continent from Port Davey in Tasmania to Cape Leeuwin in Western Australia. Specimens found on Kangaroo Island at one time led to the belief that they were the product of a terrestrial petroliferous area. Expert opinion now, however, inclines to the idea that the material is sea-borne, but the source of origin is unknown. Similar occurrences of this mineral have been reported from the coasts of California, South Africa, and New Zealand. In 1920 the finding of accumulations of oily matter on the shores at

Encounter Bay and Kangaroo Island was reported, but investigations by the Mines Department into the geological conditions of the surrounding country do not encourage the hope that the matter is of local origin.

(v) *Western Australia.* A deposit of carbonaceous shale of considerable thickness is known to exist at Coolgardie, but the mineral has not yet been raised in any quantity. It is stated that small seepages of oil have been noted near Wonnerup, and indications have been reported from the neighbourhood of Albany and Esperance. In 1920 reports were received of discoveries on the Kimberley and West Kimberley goldfield, and areas were allotted to prospectors in the vicinity of the reputed oil-bearing deposits.

(vi) *Tasmania.* Tasmanite shale has been discovered in the basins of the Mersey, Don, and Minnow Rivers, and the Government Geologist estimates the probable capacity of the beds at 12,000,000 tons. The crude oil content of average quality shale has been estimated at 40 gallons to the ton. In July, 1912, the Railton-Latrobe Shale Oil Company acquired the leases and plant of the Tasmanian Shale and Oil Company, at Latrobe, and it was proposed to develop the deposits on a large scale. The production in 1914 was, however, small, amounting to 75 tons, valued at £75, while no return from this source were included in the production records for 1915. In 1916, the Company raised 1,286 tons of shale, valued at £1,286, and in 1919, 600 tons, valued at £900, but in 1920 the output fell to 140 tons, valued at £172. Large pieces of asphaltum have been discovered in places along the sea coast and in several of the bays of Port Davey Harbour, but it is believed that the material originates in submarine beds. A bore was put down in 1916 by a private company on Bruni Island in search of petroleum, but after sinking about 429 feet, operations ceased for lack of funds.

In 1917 a deposit of tasmanite shale was located on the Cam River.

(vii) *Northern Territory.* The existence of oil shale has been reported in the Boroloola district, and several oil licenses were applied for some years ago in the Victoria River district. Results were, however, negative, and experts have pronounced unfavourably on the prospects.

(viii) *Papua.* Many indications suggest that oil-bearing strata exist over an extensive area in the Gulf Division of Papua. Seepages of oil and natural gas are known, and, in addition, light oil of excellent quality has been obtained from sandy strata encountered in most of the prospecting bores put down under the direction of the Commonwealth Government. Reconnaissance surveys have been made of the country where evidences are known to exist, while selected areas are being surveyed in greater detail. Several test bores have been sunk, the deepest being over 1,800 feet: in each case quantities of inflammable oil and has have been met with, but so far not in sufficient bulk for commercial purposes.

2. *Export of Shale.*—In 1916-17 New South Wales exported a small quantity of shale. There was no export in the succeeding year. In 1919, 5 tons, valued at £21, were exported, and in 1920, Victoria was credited with an export of 4 tons.

3. *Shale Oil Bounties.*—The Shale Oils Bounties Act 1910 provided for the payment of bounties on certain goods manufactured in Australia from Australian shale on or after the 1st July, 1910, and before the 1st July, 1913. The total amount made available for bounties under this Act was £50,000. During the year 1913, the bounties paid in New South Wales amounted to £985 on 118,000 gallons of kerosene, and £809 on 324 tons of refined paraffin wax. Under the Shale Oil Bounty Act of 1917 a sum of £270,000 was provided for bounty on crude shale oil at various rates. Bounty to the amount of £26,407 was paid on 2,816,718 gals. of crude shale oil in 1918-19, and in 1919-20 £16,292 was paid on 1,737,845 gallons.

On the 2nd January, 1920, the Commonwealth Government offered a reward of £10,000 for the discovery of petroleum oil in Australia, subject to the fulfilment of certain conditions. The reward was increased to £50,000 on the 23rd September, 1920. During 1920 the New South Wales Government offered the sum of £10,000 as a bonus for the production of 100,000 gallons of petroleum within the State. Under the Native Industries Encouragement Act of 1872, the Government of South Australia offered a bonus of £5,000 on the production within the State of 100,000 gallons of crude petroleum containing not less than 90 per cent of products obtainable by distillation.

§ 13. Other Non-Metallic Minerals.

1. **Alunite.**—One of the most remarkable deposits of alunite in the world occurs at Bullahdelah, in the country of Gloucester, New South Wales, a large proportion of a low bluff ridge in the district being composed of this mineral. The deposits are worked by quarrying, and from 1890 up to the end of 1920, 54,000 tons had been exported, valued at £194,000, the exports for the year 1920 being 634 tons, valued at £2,536. The falling-off in 1920 as compared with previous years is due to the difficulty of locating a marketable product.

Deposits of a high-class alunite are reported to have been discovered near Sunbury, in Victoria.

According to the Geologist's report, apart from its scientific interest, no commercial importance attaches to the presence of natural alum over the area examined near Boonmoor, on the Chillagoe Railway in Queensland.

In South Australia an extensive deposit of the mineral was located in 1913 at Carrickalinga Head, on the coast north of Normanville, and within a short distance of Adelaide. Fresh discoveries were later reported on the western shores of St. Vincent's Gulf. The mineral returns shew a small production of 60 tons in 1919 and 20 tons in 1920.

The exploitation of the alunite deposits in the North-east Coolgardie field in Western Australia has been retarded pending the result of field experiments to determine the suitability or otherwise of the product as a fertilizer in its unroasted state. Deposits of the mineral are also found in the Kalgoorlie area.

2. **Asbestos.**—This substance has been found in various parts of Australia, but up to the present has not been produced in any considerable quantity. In New South Wales 656 tons, valued at £7,340, were raised by a company from deposits in the Barraba division, and 8 tons, valued at £64, were raised in the Orange division. In Queensland seams of asbestos have been found over a belt of country extending from Cawarral to Canoona, as well as in other districts. Samples of the fibre proved suitable for the manufacture of fibro-cement sheeting, and tiles, but so far the deposits have not been commercially exploited. In Western Australia a deposit of the fibrous chrysotile variety was located at Soanesville, on the Pilbara gold-field, and £154 worth of this mineral was raised in 1909. During recent years chrysotile of good quality has been found at Hale's Well on the same field. The discovery of a deposit of commercial quality was reported from the Nullagine district in 1917. About 156 tons, valued at £7,286, were raised on the Pilbara field in 1920. In 1899 Tasmania raised 200 tons, valued at £363, but there was no further production until 1916, when a small quantity was raised at Anderson's Creek, near Beaconsfield. In 1917, 271 tons, valued at £271; in 1918, 2,854 tons, valued at £5,008, and, in 1919, 51 tons, valued at £1,275, were produced, but there was no record of production in 1920. Deposits of asbestos have been located at various places in South Australia. During 1920 the product was mined near Robertson in the hundred of Bright, and developmental work was carried out on a deposit in the hundred of Jellicoe. Production in 1920 amounted to 5 tons, valued at £90.

3. **Barytes.**—In New South Wales during 1920 about 222 tons of barytes, valued at £767, were obtained, of which 212 tons were raised at Cliefden mine in the Cowra division, and 10 tons at Cavan in the Yass division. The production in South Australia during 1920 was given as 2,542 tons, valued at £7,362. In this State there are extensive deposits of the mineral in the Willunga and other districts. About 1,000 tons of barytes, valued at £4,000, were produced in Tasmania in 1920, the greater portion being won from deposits near Queenstown and Mt. Jukes, and the balance from Beulah and elsewhere.

4. **Clays and Pigments.**—Valuable deposits of clays and pigments of various sorts are found throughout the Commonwealth. There is a considerable local production of earthenware, bricks, and tiles, but the finer clays have not as yet been extensively used. In New South Wales the production of kaolin in 1920 amounted to 2,788 tons, valued at £3,201, of which 825 tons were raised near Manly in the Sydney division, 381 tons in the Gulgong division, 362 tons at Pambula, and 300 tons at Buckaroo, near Mudgee. Deposits of steatite were worked during 1920 in the Murrumburrah division, the quantity

raised amounting to 27 tons, valued at £48. Near Morangaroo 3,200 tons of silica were raised by the Silica Fire Brick Company. Extensive deposits have been located in the parishes of Conyola and Ulladulla in the Milton division, the production in 1920 amounting to 11,784 tons. Red ochre is found in several parts of the Armidale division. In the Dubbo division yellow ochre valued at £600 was produced in 1920, and £100 worth was also raised in the Cobar area. From the Glen Innes division a production of 216 tons of red ochre was recorded, while 53 tons of umber were raised in the Queanbeyan division. In Victoria 2,130 tons of kaolin, valued at £2,264, were produced in 1920 from deposits at Carngham, Stawell, Egerton, Gordon, and Pyalong. A small quantity of pigments was raised from leases in the Balnarring, Lal Lal, and Knowsley areas. In Queensland, 7,539 tons of fireclay, valued at £2,188, were mined during the year 1920 in the Mount Morgan district. At Canoona, in the Rockhampton district, a white substance was mined and disintegrated in a circular puddle, the floating slimes being allowed to sun-dry. Ten tons of the product were put on the market and sold in 1920 as whiting. On Kangaroo Island, South Australia, where, it is stated, the first pottery mill in the Commonwealth was erected, there are vast deposits of felspar, china-stone, silica, and firebrick clay. There are also very extensive deposits of fireclay near Ardrossan on the Yorke Peninsula. Ochre deposits of fine quality are found in the Noarlunga area. Production of ochre in 1920 amounted to 260 tons, valued at £1,131. Porcelain and other clays of good quality have been found in Tasmania at Beaconsfield, Sorell, Hagley, etc. Extensive deposits of iron oxide, giving a return of 80 per cent. ochre, have been discovered near Oodlawirra in South Australia. Oil and water paints of good quality have been made from coloured ochres from Sorell, in Tasmania, and a deposit of ochre of good quality has been located near Mowbray. A company is making paints from the latter deposits, and also from deposits on leases near Ilfracombe. At Kingston a valuable clay deposit has been opened up.

5. **Coorongite.**—This peculiar india-rubber like material was first noted many years ago near Salt Creek and in the vicinity of Coorong Inlet, in South Australia, as well as at various localities on Kangaroo Island. It was thought that the substance owed its origin to subterranean oil-bearing strata, but so far the search for petroleum has not been attended with success. (See also § 12, 1 (iv.)) While the origin of coorongite is still in doubt, it is held by some observers that it originates from the blue-green algæ which frequently abound in swamps and shallow inland waters. Similar material has been found in Portuguese East Africa, and on the shores of lakes in Siberia.

6. **Fuller's Earth.**—Small quantities of this material were produced in 1920 from deposits in the Boggabri area of the Narrabri division, New South Wales.

7. **Graphite.**—Graphite is found in New South Wales near Undercliff Station, in the county of Buller, and 40 tons were raised during 1920. Owing to the low grade of the ore there is only a limited market for it. In Victoria the mineral occurs in Ordovician slates in several of the gold-fields, but is not worked. In Queensland graphite was raised some years ago by the Graphite Plumbago Company at Mt. Bopple, near Netherby, on the Maryborough-Gympie line. In South Australia deposits are found at various places in Eyre's Peninsula. While a large proportion of the product is not suitable for commercial use, the work so far done shews that flake graphite containing as high as 80 per cent. carbon can be obtained. The Government is offering a bonus of £1 per ton for the production of a marketable graphite. In Western Australia deposits occur at Munghlinup Creek, near the Oldfield River, at Northampton, in the Murchison division, and on the Donnelly River, at Kendenup, about 40 miles from Albany. Production in 1920 was small, amounting to 13 tons, valued at £130.

8. **Gypsum.**—This mineral is found in various places in the Commonwealth. It occurs in two forms, large crystals, and a floury earth consisting of minute crystals and known as "copi." Both forms are exceedingly pure. It is used largely as a natural manure and to some extent in the manufacture of Portland cement. Gypsum, or hydrous sulphate of lime, when burnt, forms plaster of paris. The mineral has been found in the Hay and Hillston divisions in New South Wales, and encouraging results have been obtained from trial shafts at various places in the county of Mossgiel. In

Victoria during 1920 there was a production of 3,393 tons, valued at £1,696, obtained chiefly at Lake Boga. Production was also reported from leases at Boort and Fairley. Numerous deposits of gypsum are found in Southern Yorke's Peninsula in South Australia. The production in 1920 amounted to 40,000 tons, valued at £32,000. A factory for the manufacture of plaster of paris has been erected by the Permasite Co. on its lease at Dry Bone Lake. A deposit of gypsum sand containing practically an inexhaustible supply is found on the edge of Lake Austin in Western Australia, and a large deposit has also been located on the shore of Lake Seabrook.

9. **Magnesite.**—Deposits of this mineral have been discovered at several localities in New South Wales. During 1920, 3,261 tons, valued at £7,124, were raised in the Fifield division, and 3,199 tons, valued at £2,760, at Attunga, in the Tamworth division. A small quantity was raised in the Bingara division in the parish of Macintyre, and it is proposed to exploit the deposits at Warialda. There are extensive deposits of the mineral at Piedmont in the Barraba division. The mineral is found at Heathcote in Victoria, where 151 tons, valued at £453 were produced in 1920. There are deposits in the neighbourhood of Rockhampton and Bowen in Queensland, and a deposit of exceptional purity has been located in the vicinity of Tumby Bay in South Australia, about five miles from the township of Tumby. The cost of transport is a drawback to the production from the Copley (Leigh Creek) district. The Broken Hill Co. is working a small deposit near the Beetaloo Waterworks. Production in 1920 amounted to 185 tons, valued at £347. During 1915, 688 tons of magnesite, valued at £1,196, were exported from Western Australia, but the export in 1916 amounted to 12 tons only, in 1917 to 42 tons, in 1918 to 62 tons, while none was exported in 1919 and 1920. A large area of magnesite-bearing country has been located at Bulong, about 20 miles east of Kalgoorlie.

10 **Tripolite, or Diatomaceous Earth.**—Although tripolite has been found at various localities in New South Wales, the deposits have not been worked commercially on any considerable scale. From the deposits in the Cooma division 241 tons of diatomaceous earth, valued at £561, were produced in 1920. At Bell's Mountain, in the Barraba division, about 100 tons, valued at £200, were raised, and small quantities were won in the Ballina and Lismore divisions. In Victoria there is a remarkably pure deposit at Lillicur, near Talbot, while beds of the mineral are also met with at other places in the Loddon Valley, near Ballarat, at various places close to Melbourne, at Craigieburn, Lancefield, Portland, Swan Hill, Bacchus Marsh, etc. During 1920, a production of 1,000 tons, valued at £5,000, was recorded. Fairly extensive deposits of diatomite exist in Queensland, in the Nerang, Beaudesert and Canungar areas, but the various outcrops have as yet been only partially examined. In Tasmania a deposit of diatomaceous earth has been located at Oatlands, but its use for the manufacture of explosives is apparently prejudiced by the circumstances that the diatoms are pulverised and contaminated with clay.

11. **Salt.**—Salt is obtained from salt lakes in the Western and North-western Districts of Victoria, and from salterns in the neighbourhood of Geelong. Figures regarding production are, however, not available for publication. Large quantities are also obtained from the shallow salt lakes of South Australia, chiefly on Yorke Peninsula. Lake Hart, about 60 square miles in area, situated about 120 miles N.W. from Port Augusta, contains immense supplies of salt of good quality, which at present, however, owing to distance from market, possess no economic value. The salt is simply scraped from the beds of the lakes in summer time and carted to the refinery. It is stated that care must be taken not to leave too thin a crust of salt over the underlying mud as the resultant "crop" after the winter rains will in that case be smaller than usual. A bore put down near Kingscote, on Kangaroo Island, revealed brine from which salt can be profitably obtained by evaporation. About 71,000 tons of crude salt, valued at £142,000, were produced during 1920. In Western Australia supplies are obtained from dried-up shallow lakes and consumed locally or exported. The chief centres of production were formerly Rottneest Island, near Fremantle, Middle Island, near Esperance, and Port Gregory; but during recent years the bulk of the demand has been supplied from imports.

Attention has recently been devoted to the occurrence of salt in Queensland, more especially to the deposits in the vicinity of the Mulligan River.

12. Natural Manures.—Gypsum has already been mentioned (see 8 *ante*). South Australia possesses deposits of rock phosphate scattered through various districts between Willunga in the south and Carrieton in the north, and between Clinton on Yorke Peninsula and Bright to the north of Eudunda. The production in 1920 was 8,753 tons, valued at £12,309. Phosphate of lime has been found in deposits in the limestone caves of New South Wales; the Ashford caves in the Inverell division containing thousands of tons. The production in 1920 amounted to 154 tons of phosphate rock, valued at £732, raised in the Cowra division. In Victoria, about 4,000 tons of phosphate rock were raised in 1920 at Mansfield. Although it can hardly be considered a mineral product, mention may be made here of the large accumulations of guano found on the Abrolhos Islands, off the coast of Western Australia, in the neighbourhood of Geraldton. The deposits varied in thickness from four to twenty-seven inches, and during the years 1876 to 1880 over 36,000 tons were raised; no figures are available shewing the quantity raised in recent years.

§ 14. Gems and Gemstones.

1. Diamonds.—Diamonds were first noted in New South Wales by E. J. Hargraves in 1851, and in October of the same year by Geological Surveyor Stutchbury. The Cudgong field was discovered in 1867, and shortly afterwards the Bingara diamantiferous deposits were located. Stones of small size are also found at Cope's Creek and other places in the Inverell district. The largest diamond won in New South Wales was reported to have been obtained in 1905 at Mt. Werong, near Oberon, and weighed $28\frac{5}{16}$ carats. It is difficult to secure accurate returns in connexion with the production of precious stones, but the yield of diamonds in 1920 was estimated at 3,523 carats, valued at £6,282, while the total production to the end of 1920 is given at 199,000 carats, valued at £140,000. The yield in 1920 was contributed by miners working in the vicinity of Copeton, in the Tingha division. Small quantities of diamonds are found in Victoria in the gravels of streams running through granite country in the Beechworth district, at Kongbool in the Western District, and near Benalla. The stones are generally small and the production up to date has been trifling. In 1912, eleven small diamonds, valued at £20, were picked out of the sluice boxes of the Great Southern alluvial mine at Rutherglen. A few small diamonds have been found in the Pilbara district in Western Australia. In South Australia diamonds have been found on the Echunga goldfield, the most notable gem being Glover's diamond, which was sold for £70. A few small diamonds have, from time to time, been found in Tasmania, chiefly while sluicing for gold in the Donaldson district.

2. Sapphires.—These gems were discovered in New South Wales in 1851, near Burrandong. They have also been found in the Inverell division, at Tingha and at other localities in the State. During 1920, the production from the Inverell division was valued at about £800, and from the Tingha division at £1,200. Specimens of sapphire have been found in Victoria, but the stones of commercial size are generally of little value owing to flaws.

In Queensland sapphires are found in the gravel of creek beds, between Withersfield and Anakie on the Rockhampton-Winton railway line. The gems shew excellent fire and lustre, but the colour is darker blue than the Oriental sapphire. Hyacinths are occasionally found in association with the gems. The production of sapphires in Queensland in 1920 was valued at £65,831 as compared with £600 in 1915, and over £40,000 in 1913. The gem mining industry practically collapsed on the outbreak of the war, as the German buyers ceased business. With the opening up of markets in London and Paris, however, matters assumed a more satisfactory footing and business remained fairly satisfactory in 1918. During 1919, owing to the keen demand for the gems, prices rose rapidly. It is stated that the increased demand was partly due to the circumstance that many persons in Europe were converting their assets into gems, in view of the international value possessed by the latter, and was partly brought about by development of the gem-cutting industry in France and England. Competition amongst buyers in the early part of 1920 resulted in a phenomenal rise in price which had the effect of over-stimulating

production, this being naturally followed by a period of depression. The market also was affected by adverse exchange. One of the finest stones discovered on the field was obtained during 1920 by a miner at Retreat Creek, the gem realising £200.

Sapphires are plentifully found in the tin drifts of the Ringarooma and Portland districts in Tasmania, but the stones are, as a rule, small and not worth saving.

3. Precious Opal.—This stone was first discovered in New South Wales at Rocky Bridge Creek on the Abercrombie River, in the year 1877, and later a most important discovery was made at White Cliffs in the Wilcannia district, which, for a time, contributed the bulk of the production. In 1920, however, out of a total production valued at £23,600, the yield from the Lightning Ridge field, near Walgett, amounted to £20,000, while the output from the White Cliffs field was £600. A new field was opened up in 1919 in the Ballina division, and about £3,000 worth of opal was raised therefrom in 1920. Some very fine stones are at times obtained, one weighing 5 ozs. and valued at £300 being recovered in 1911. Occasionally, black opals of very fine quality are found, one specimen from the Wallangulla field, weighing $6\frac{1}{2}$ carats, being sold in 1910 for £102, while in the early part of 1920 a specimen realised £600. It is stated that this locality is the only place in the world where the "black" variety of the gem has been found. The total value of opal won in New South Wales since the year 1890 is estimated at £1,500,000.

Small quantities of precious opal are also found in the Beechworth district in Victoria.

In Queensland, the first recorded discovery of the gem dates from about 1875. The opaliferous district stretches over a considerable area of the western interior of the State, from Kynuna and Opalton as far down as Cunnamulla. The yield in 1920 was estimated at £500, and up to the end of that year at about £180,000. These figures are, however, merely approximations, as large quantities of opal, of which no record is obtained, are disposed of privately to buyers on the fields. At present the industry, which is not followed by practical miners, suffers from the peculiar disability that in good seasons there is plenty of work available on the pastoral stations, and most men prefer this to the uncertain results obtainable by fossicking, while in dry seasons, when constant work is not obtainable, the search for opal is blocked by the absence of grass and water on the fields.

Precious opal has been discovered in South Australia in a locality 144 miles N. by E. of Tarcoola. The specimens show similar characteristics to those obtained at White Cliffs in New South Wales. Production in 1920 amounted to about £24,000.

4. Other Gems.—Emeralds were found in New South Wales in the year 1890, near the township of Emmaville, the largest specimen found in the district weighing 23 carats in the rough. Altogether 2,225 carats were sent to London during that year, some of the gems bringing £4 a carat, but the production has since dwindled. The mine at the Glen in the Emmaville division was re-opened and worked for a short period during 1908, when about 1,000 carats of emeralds, valued at about £1,650, were obtained. The largest stone in the rough weighed 60 carats. Small emeralds of fine quality have been found at Poona, in Western Australia, and it is stated that prospecting at greater depths would possibly reveal the existence of larger specimens. Amongst other gems found in New South Wales at various times may be mentioned *turquoises*, discovered in 1894, near Bodalla; *topazes*, fine specimens of which have been obtained in the New England district; and *zircons* and *garnets*. Zircons are found on the Anakie mineral field in Queensland, and in the vicinity of Table Cape in Tasmania. Topazes have been obtained in the Stanthorpe district in Queensland and are common in the tin drifts of Tasmania, where some fine specimens have been found. Turquoises are also found in thin veins in Victoria. In Gascoigne's mine, situated near the King River, in the parish of Edi, samples of the gem have been found equal in colour to the best Persian stone, and a considerable quantity of turquoises from this mine has been sold in England and Germany. Fine *agates* are found in many places in Victoria, but have not been made use of to any extent. These gems also occur plentifully in the bed of Agate Creek, about four miles south of Forsayth, on the Etheridge field in Queensland. Garnets are found in Western Australia, and beautiful specimens of *crocidolite* have been obtained at Yarra Creek in the Murchison district. *Rubies* have been found at various places in New South

Wales and Queensland. *Tourmaline* has been found on Kangaroo Island, in South Australia, and *beryls* near Williamstown, Victoria, at Fossilbrook, in the Chillagoe district in Queensland, and at Poona, in Western Australia. Very large but impure beryl crystals have been found at Ben Lomond in Tasmania. Some fine samples of *chiastolite* or luck stones have been found at Mt. Howden, near Bimbourie, in South Australia.

(C) GENERAL.

§ 15. Numbers Engaged, Wages Paid, and Accidents in Mining.

1. **Total Employment in Mining.**—The number of persons engaged in the mining industry in each State and in the Commonwealth fluctuates according to the season, the price of industrial metals, the state of the labour markets, and according also to the permanence of new finds, and the development of the established mines. During the year 1920 the number so employed was as follows:—

NUMBER OF PERSONS ENGAGED IN MINING, 1920.

State.	Number of Persons Engaged in Mining for						Total.
	Gold.	Silver, Lead, and Zinc.	Copper.	Tin.	Coal and Shale.	Other.	
New South Wales ..	1,712	1,931	583	1,822	19,965	3,150	29,163
Victoria ..	3,742	..	2	48	2,011	338	6,141
Queensland ..	611	143	1,815	920	2,379	1,037	6,905
South Australia ..	100	..	1,285	..	..	1,430	2,815
Western Australia ..	7,087	238	116	187	830	38	8,496
Tasmania ..	48	517	1,577	1,318	220	714	4,394
Northern Territory ..	20	2	2	120	..	84	228
Commonwealth ..	13,320	2,831	5,380	4,415	25,405	6,791	58,142

The following table shews the number of persons engaged in mining in the Commonwealth during each of the years 1891, 1901, and 1920, together with the proportion of the total population so engaged. The general falling-off since 1901 is due to the stagnation caused by the war, the low price of industrial metals, and largely also to the decline in the gold-mining industry:—

PROPORTION OF PERSONS ENGAGED IN MINING, 1891, 1901, AND 1920.

State.	1891.		1901.		1920.	
	Miners Employed.	No. per 100,000 of Popu- lation.	Miners Employed.	No. per 100,000 of Popu- lation.	Miners Employed.	No. per 100,000 of Popu- lation.
New South Wales ..	30,604	2,700	36,615	2,685	29,163	1,409
Victoria ..	24,649	2,151	28,670	2,381	6,141	406
Queensland ..	11,627	2,934	13,352	2,664	6,905	924
South Australia ..	2,683	834	7,007	1,931	2,815	578
Western Australia ..	1,269	2,496	20,895	11,087	8,496	2,578
Tasmania ..	3,988	2,695	6,923	4,017	4,394	2,088
Northern Territory ..	..	..	..	..	228	..
Commonwealth ..	74,820	2,341	113,462	2,992	58,142	1,085

2. **Wages Paid in Mining.**—Particulars regarding wages paid in the mining industry, which in earlier issues of the Year Book were given in this section, have now been transferred to the section dealing with Labour and Industrial Statistics.

3. **Accidents in Mining, 1920.**—The following table gives particulars of the number of men killed and injured in mining accidents during the year 1920 :—

NUMBERS KILLED AND INJURED IN MINING ACCIDENTS, 1920.

Mining for—	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. T.	C'wealth.
KILLED.								
Coal and shale	20	1	2	..	..	..	..	23
Copper ..	..	..	6	1	..	1	..	8
Gold ..	..	3	..	..	20	..	..	23
Silver, lead, and zinc ..	..	..	..	..	1	..	..	1
Tin ..	2	..	1	..	..	..	..	3
Other minerals	2	..	1	..	..	..	..	3
Total ..	24	4	10	1	21	1	..	61

INJURED.								
Coal and shale	113	5	9	..	94	13	..	234
Copper ..	1	..	24	3	..	19	..	47
Gold ..	1	13	4	..	435	..	..	453
Silver, lead, and zinc ..	5	..	..	..	3	3	..	16
Tin ..	2	..	4	..	..	9	..	15
Other minerals	3	..	2	..	1	4	..	10
Total ..	125	18	43	3	538	48	..	775

§ 16. State Aid to Mining.

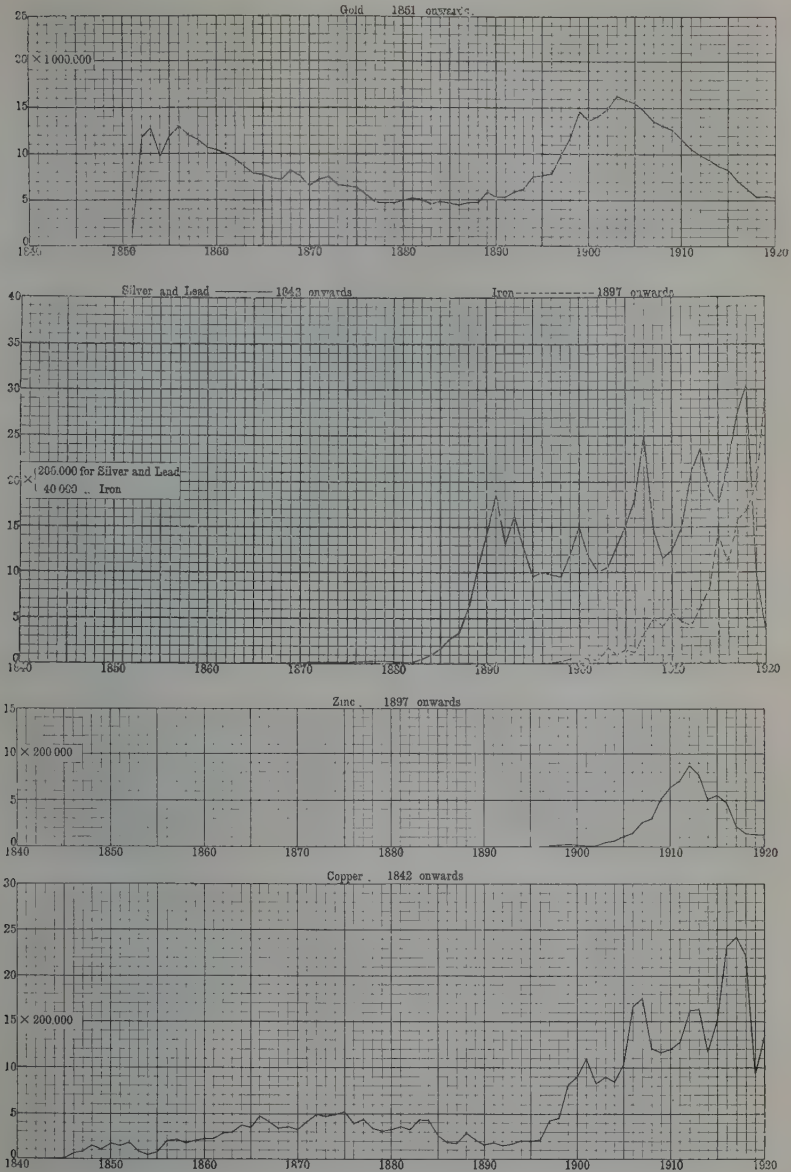
1. **Introduction.**—The terms and conditions under which the States granted aid in mining were alluded to at some length in previous issues (see Year Books 4 and 5), but owing to considerations of space they have been omitted from this issue. A résumé of what is being done in this direction at the present time is given hereunder.

2. **New South Wales.**—The chief aid given in this State is in the direction of assistance to prospectors. Up to the end of 1920 the total sum expended in this manner amounted to £505,037, of which £9,081 was advanced in 1920.

3. **Victoria.**—Since the passage of the Mining Development Act in 1897, the expenditure under its varying provisions has been £733,605, of which £339,635 was disbursed in connexion with advances for prospecting, £211,210 on boring, £69,603 on testing plants, £62,841 on roads and tracks, and £50,316 on purchase of cyanide plant, equipment of School of Mines, and miscellaneous. In 1920–21, £17,617 was expended as follows:—Construction and maintenance of State batteries, £4,611, boring, £11,180, advances to companies and private parties, £1,000, and £826 in geological and other surveys; in addition, £14,000 was lent to the Morning Star Gold Mine at Woods' Point, of which £3,000 has been repaid.

4. **Queensland.**—State assistance to the mining industry in 1920 amounted to £23,998, of which £5,732 consisted of loans in aid of deep sinking; £12,041 grants in aid of prospecting; £5,224 in aid of roads and bridges to gold and mineral fields; and £1,000 towards the cost of developing guano deposits. The Government acquired the smelters and plant of the Chillagoe Company in 1919, and operations were begun early in January, 1920, with two furnaces, one for the treatment of lead ore, and the other for copper ores. About 75 per cent. of the ore smelted in the copper furnace was supplied by the Einasleigh State Mine, and the Girofla Mine of the Mungana group furnished 80 per cent. of the ore dealt with in the lead furnace, the remainder being supplied by small producers. The State treatment works at Irvinebank produced 250 tons of tin from ore supplied by a number of customers. Small quantities of tin, wolfram, bismuth, and molybdenite were produced at the State Battery at Bamford.

GRAPHS SHEWING VALUES OF THE PRINCIPAL MINERALS PRODUCED IN THE
COMMONWEALTH, 1840 TO 1920.

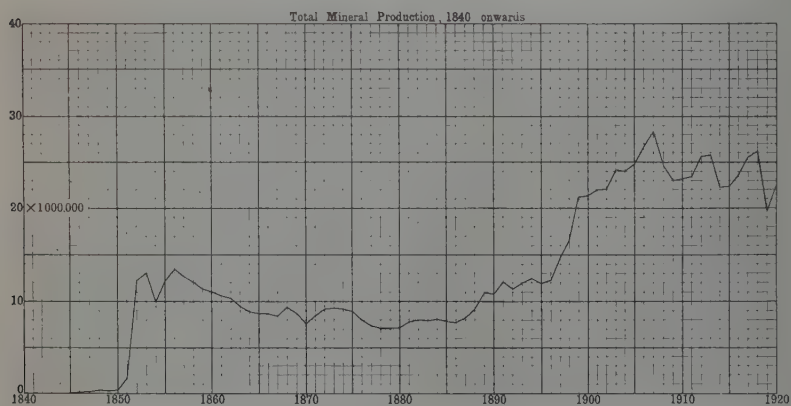
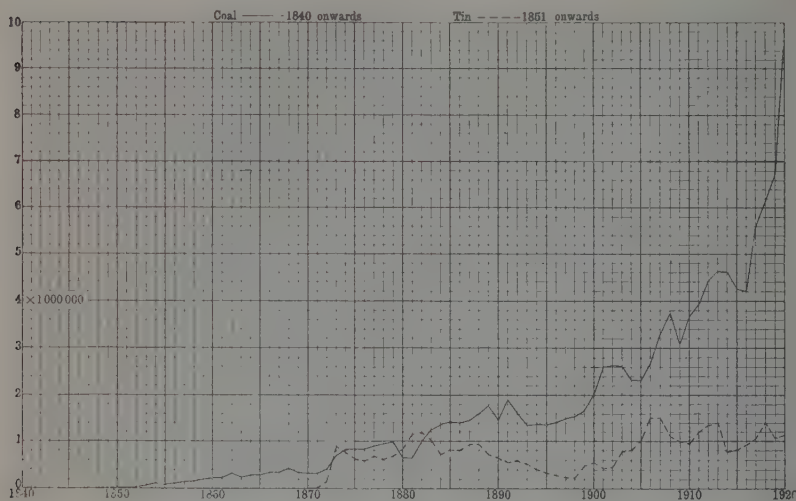


(See pages—for gold, 330 ; silver, 338 ; iron, 348 ; zinc, 347 ; copper, 341.)

EXPLANATION OF GRAPHS.—The values shewn in the above diagrams are those of the total Commonwealth production of certain of the most important minerals in successive years from 1840 to 1920.

The base of each small square represents an interval of one year, and the vertical height represents in the case of gold £1,000,000, in the case of silver and lead, zinc, and copper £200,000, and in the case of iron £40,000.

GRAPHS SHEWING VALUES OF THE PRINCIPAL MINERALS PRODUCED IN THE
COMMONWEALTH, 1840 TO 1920—*continued.*



(See pages 355 for coal ; 344 for tin ; and 329 for total mineral production.)

EXPLANATION OF GRAPHS.—The values shewn in the above diagrams are those of the total Commonwealth production of certain of the most important minerals in successive years from 1840 to 1920.

The base of each small square represents an interval of one year, and the vertical height represents in the case of coal and tin £200,000, and in the case of total mineral production £1,000,000.

5. **South Australia.**—Aid is given to the mining industry under the terms of the Mining Act of 1893, and previous measures. Up to the end of 1920 the total amount of subsidy paid was £65,109, of which £11,265 has been repaid, and £2,250 written off, leaving a debit of £51,594. Portion of this amount is represented by machinery that has fallen into the hands of the Government. Repayments are made from profits, but in only two instances have the profits enabled a full return to be made.

6. **Western Australia.**—Under the Mining Development Act of 1902 assistance was granted in 1920 in accordance with the subjoined statement :—Advances in aid of mining work and equipment of mines with machinery, £23,467; aid to prospectors, £3,486; advances in aid of boring, £3,556; subsidies paid on stone crushed for the public, £291; making a total of £30,800. In addition a sum of £2,555 was expended on various matters such as water supply, assistance in carting ores, etc. The receipts under the Act, exclusive of interest payments, came to £2,653, of which £1,887 consisted of refunds of advances.

In 1920 there were 29 State batteries in operation. The amount expended thereon up to the end of 1920 was £91,981 from revenue and £292,596 from loan, giving a total of £384,577. During the year receipts amounted to £35,951, and working expenditure to £42,314.

The total value of gold and tin recovered to the end of 1920 at the State plants was £5,380,000, resulting from the treatment of 1,284,000 tons of gold ore and 80 000 tons of tin ore, together with a small amount from residues.

7. **Tasmania.**—During the year 1920, the sum of £1,505 was expended in aid to mining, including £450 for salaries, £99 for assay material, £250 assistance to prospectors, and an advance of £600 to the No. 6 Argent Prospecting Syndicate. On the other hand the receipts amounted to £2,237 of which £2,135 was royalty paid by tributers.

Tributers' surveys and assays are made free of charge by the Assay and Survey Office at Zeehan.

8. **Northern Territory.**—During the year 1919–20 the Government expenditure in aid of mining amounted to £4,976, of which £688 represented subsidies; £378 loss on crushing operations at Marranboy battery; £1,233 expenditure on driving and shaft sinking; £2,497 aid to Government prospecting party; and £180 cost of free assays. As it was considered that the method of assisting private prospectors was unsatisfactory the Government took over the control. The Government Prospecting Party was disbanded on the 30th June, 1920, and although no discovery of importance was made, useful information was obtained regarding the Central Tableland area and the headwater valleys and systems of the Katherine, Alligator, Mary, Waterhouse, Roper, and Ferguson rivers.

The Government maintains batteries at Marranboy and Hayes Creek. During the year the Government Assayer made 197 free assays for prospectors and others.

§ 17. Commonwealth Government Control of Industrial Metals.

The proclamation under the Customs Act prohibiting the exportation of metals without the consent of the Minister for Trade and Customs is still in force, but consent is granted in every case where the contract relating to the sale of the metals has been registered with the Australian Metal Exchange.

§ 18. Estimated Metallic Contents of Ores, etc., Produced in Australia.

1. **Local Production.**—According to returns compiled by the Secretary of the Australian Metal Exchange from information obtained from mining companies and metal smelting and refining works, the quantities of the principal metals (exclusive of gold) extracted within the Commonwealth during the five years 1917 to 1921 were as follows :—

REFINED METALS PRODUCED IN AUSTRALIA, 1917 TO 1921.

Metal.			1917.	1918.	1919.	1920.	1921.
Silver	..	ozs.	6,437,079	9,924,322	6,696,788	681,370	4,572,878
Lead, pig	..	tons	125,100	166,731	82,732	4,077	55,749
Zinc	..	tons	4,188	10,029	6,544	9,665	1,681
Copper	..	tons	35,989	44,018	16,182	24,069	18,600
Tin	..	tons	3,990	4,582	4,102	4,108	2,985

2. **Metallic Contents of Ores, Concentrates, etc., Exported.**—The estimated metallic contents of ores, concentrates, etc., exported during the five years 1917 to 1921 are given in the following table :—

ESTIMATED METALLIC CONTENTS OF ORES, CONCENTRATES, ETC., EXPORTED 1917 TO 1921.

Metal.		Contained in—	1917.	1918.	1919.	1920.	1921.
Silver	ozs.	Lead, Silver, Gold Bullion	1,977,603	..	..	141,263	64,811
		Lead Concentrates	..	..	..	..	210,944
		Zinc Concentrates	1,582,575	5,666,609	1,161,754	980,891	456,817
		Total ..	3,560,178	5,666,609	1,161,754	1,122,154	732,072
Lead	tons	Lead, Silver, Gold Bullion	22,766	..	..	1,939	580
		Lead Concentrates	..	..	..	4,122	3,950
		Zinc Concentrates	9,138	32,653	7,463	6,345	2,498
		Total ..	31,904	32,653	7,463	12,406	7,028
Zinc	tons	Lead Concentrates	..	..	..	..	435
		Zinc Concentrates	45,851	23,335	20,608	24,242	19,181
		Total ..	45,851	23,335	20,608	24,242	19,616
Copper	tons	Ores, Matte, etc.	..	..	..	2,117	34
Tin	tons	Concentrates	847	..	..	70	5

The quantities and values of the principal metals, ores, and concentrates of Australian produce exported overseas as recorded by the Customs Department for the year 1920-21 were as follows :—Antimony ore, 463 tons, £10,865 (284 tons to United Kingdom); zinc, bars, blocks, and rods, 3,321 tons, £139,026 (of which 2,745 tons went to United Kingdom); zinc concentrates, 42,350 tons, £224,541 (14,786 tons to United Kingdom and 27,563 tons to Belgium); copper, ingots, 21,183 tons, £2,230,766 (19,124 tons to United Kingdom); copper, in matte, 2,473 tons, £192,408 (to United States); tin, ingots, 2,056 tons, £497,264 (1,381 tons to United Kingdom and 492 tons to United States); lead, pig, 19,769 tons, £667,919 (15,962 tons to United Kingdom, 1,800 tons to United States and 1,078 tons to Japan); lead, matte, 1,208 tons, £37,495 (to United Kingdom); silver and lead concentrates, 1,735 tons, £38,562 (1,193 tons to Belgium); molybdenite, 124 tons, £40,940 (to United Kingdom); wolfram, 311 tons, £48,276 (265 tons to France); platinum, osmium, iridium, etc., 2,586 ozs., £81,143 (587 ozs. to United Kingdom and 1,763 ozs. to United States); and pig iron, 9,034 tons, £75,069 (7,688 tons to New Zealand).

SECTION XIII.

MANUFACTURING INDUSTRIES.

§ 1. General.

1. **Industrial Progress.**—The statistics of manufactures in the Commonwealth shew that many industries have now been permanently established on a secure basis, and indicate a consistent progress both in regard to the extension of existing industries and the establishment of new ones. As will be seen from the following pages, this growth has been particularly rapid since the abolition of inter-colonial tariffs consequent upon the creation of the Commonwealth of Australia in 1901, the throwing open of the whole of the Australian markets to the industrial products of each State having facilitated the internal distribution of the products of Australian industry.

(i) *The Gold Discoveries, 1851.* Prior to the gold discoveries (1851) there was little development in the manufacturing industries of Australia. Reference to that period will be found in earlier issues of the Year Book (see No. 6, page 524.)

(ii) *Later Progress.* Soon after the discovery of gold, the construction of the first railways (1854) and the re-establishment of regular steamship communication with Europe (1856) helped to encourage the nascent industrial activity. The Colonies of New South Wales and Victoria, which had recently (1855) received the benefits of responsible government, soon turned their attention to the settlement of an agricultural population on the land. The Acts which were passed had a beneficial effect on the workers, giving them opportunities for employment not previously open to them, and fostering the manufacturing industries by increasing the measure of primary production. During the following years the various manufacturing industries prospered. The statistics of the States are not sufficiently complete or uniform to enable a statement of the progress of these industries to be given. The following table, however, shewing, so far as returns are available, the number of factories and the number of employees in each State at decennial periods from 1861 to 1911, and for each of the six years 1916 to 1920–21, will serve to indicate generally the progress which has been made. During recent years a change has been made in the period for which manufacturing returns are collected by several of the States, viz., New South Wales, Victoria, and South Australia, these States having adopted the financial year ending on the 30th June instead of the calendar year. Efforts were made to secure a uniform period of collection throughout the Commonwealth, and the financial year was favoured as being more suitable generally for statistical purposes, but the statisticians of those States which furnish information for the calendar year have so far failed to make the desired change. Owing to the late arrival of some of the returns, it was necessary, in 1917 and 1918, to combine the statistics of New South Wales, Victoria, and South Australia to 30th June with those of Queensland, Western Australia, and Tasmania to the 31st December, of the same year. This arrangement was not satisfactory on account of the late presentation of the figures for three of the more important States.

In order to bring the statistics more up to date, the returns for New South Wales, Victoria, and South Australia were carried forward a year, and from 1918–19 onwards the returns as presented will consist of Queensland, Western Australia, and Tasmania to 31st December, and New South Wales, Victoria, and South Australia to 30th June, six months later. The 1920–21 results contained in this issue therefore embrace Queensland, Western Australian, and Tasmanian statistics to 31st December, 1920, and the remaining States to 30th June, 1921.

NUMBER OF FACTORIES AND EMPLOYEES IN EACH STATE, 1861 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Commonwealth.
NUMBER OF FACTORIES.							
1861	601	531	..	..	..	..	..
1871	1,813	1,740	..	..	..	..	..
1881	2,961	2,488	571 <i>d</i>	823 <i>d</i>	..	..	..
1891	3,056	3,141	1,328 <i>d</i>	996 <i>d</i>	175	..	..
1901	3,367	3,249	2,110 <i>d</i>	1,335 <i>d</i>	662	420 <i>e</i>	11,143
1911	5,039	5,126	1,657	1,314	710	609	14,455
1916 <i>a</i>	5,210	5,413	1,782	1,266	771	563	15,010
1917 <i>b</i>	5,356	5,445	1,793	1,286	759	540	15,179
1918 <i>b</i>	5,414	5,627	1,778	1,285	764	553	15,421
1918-19 <i>c</i>	5,460	5,720	1,778	1,313	764	553	15,588
1919-20 <i>c</i>	5,662	6,038	1,754	1,368	817	552	16,291
1920-21 <i>c</i>	5,837	6,532	1,795	1,438	895	616	17,113
NUMBER OF EMPLOYEES.							
1861	..	4,395	..	..	..	..	..
1871	13,583	19,569	..	5,629 <i>d</i>	..	..	..
1881	31,191	43,209	..	10,995 <i>d</i>	..	..	..
1891	50,879	53,525	..	14,099 <i>d</i>	..	..	..
1901	66,135	66,529	26,172 <i>d</i>	19,283 <i>d</i>	12,198	7,466 <i>e</i>	197,783
1911	108,624	111,948	37,156	27,885	15,799	10,298	311,710
1916 <i>a</i>	116,401	113,834	39,983	25,196	12,676	8,362	316,752
1917 <i>b</i>	117,997	116,970	40,446	26,010	12,168	8,079	321,670
1918 <i>b</i>	120,554	118,241	40,990	26,634	12,917	8,713	328,049
1918-19 <i>c</i>	127,591	122,349	40,900	27,915	12,917	8,713	340,475
1919-20 <i>c</i>	144,454	136,522	40,891	29,442	15,409	10,016	376,734
1920-21 <i>c</i>	145,011	140,743	43,196	30,430	17,034	10,225	386,639

(a) New South Wales for year ended 30th June, 1916; Victoria and South Australia, calendar year 1915; Queensland, Western Australia, and Tasmania, calendar year 1916. (b) New South Wales, Victoria, and South Australia for year ended 30th June; the remaining States for year ended 31st December. (c) Queensland, Western Australia, and Tasmania for year ended 31st December; the remaining States for year ended 30th June, six months later. See last paragraph above. (d) Not on same basis as other States. (e) For 1902.

NOTE.—In this and all subsequent tables, except where specially mentioned, "Number of Employees," includes working proprietors.

2. Defects in Industrial Statistics.—A complete statistical account of the growth of the manufacturing industries in Australia unfortunately cannot be given for any lengthy period, owing to the fact that the necessary statistics have not been collected in past years by the several States upon a definite and identical basis. Even in respect of the definition of a "factory" or (so far as they might be included in related returns) the statistics of persons employed therein, there was formerly no common agreement. The relatively minor place that manufacturing industry held in relation to the total activity of Australia was, perhaps, responsible for the fact that the necessity for uniform method was not earlier recognised.

In 1896 it was agreed, as between Victoria and New South Wales, to adopt a common definition of the term "factory," viz., "any factory, workshop, or mill where four or more persons are employed or power is used." This agreement was adopted for the States generally at the Conference of State Statisticians in 1902, when it was decided, however, that the term "factory," should include also "all establishments, whether making for the trade, wholesale or retail, or for export." It was further agreed that industries should be arranged, as far as possible, under a uniform classification which was drawn up by the conference. As a result of the conference of 1902 a higher degree of uniformity in the collection and presentation of industrial statistics was attained in the several States, so that returns upon which anything like a proper comparative study of the development and progress of various manufacturing industries in the Commonwealth may be based date back only as far as the year 1903, when the resolution of the conference first came to be put into force. All the States did not, however, fall completely into line, and, as may be seen in the succeeding parts of this section, the comparisons afforded by the returns for the years 1903 to 1906 inclusive are in some cases subject to various

limitations. At the Conference of Statisticians held in Melbourne in 1906, special consideration was given to the methods to be adopted for the collection of statistical information regarding primary and secondary production and industry. The classification of industries prepared by the conference of 1902 was adopted, and a set of forms for the collection and compilation of industrial statistics on a definite and uniform basis in each State was agreed upon. The States have not, even yet, fallen entirely into line in collecting and classifying the returns. The particulars for the past sixteen years are, however, in more complete co-ordination than formerly, and it is now possible to give particulars for the several States in greater detail and with greater uniformity throughout.

3. Classification of Manufacturing Industries.—Under the classification prepared by the Conference of Statisticians held in 1902, and adopted at that held in 1906, factories were placed under nineteen different categories, according to the nature of the industry carried on therein, most of the categories being further subdivided. Where two or more industries are carried on by one proprietor in one building, each industry is, when possible, treated as a separate establishment. The statement given hereafter shews the classification which has been adopted; it must be understood, however, that this classification does not pretend to be exhaustive, but merely serves as a guide for the collection and presentation of statistics in the several States on a definite and uniform basis:—

CLASSIFICATION OF MANUFACTURING INDUSTRIES.

CLASS I.—TREATING RAW MATERIALS, ETC. Boiling-down, Tallow Refining, etc. Tanneries Woolscouring and Fellmongering Chaff-cutting, etc.	Confectionery Corn-flour, Oatmeal, etc. Flour Mills Jam and Fruit Canning Pickles, Sauces, and Vinegar Sugar Mills Sugar Refining Aerated Waters, Cordials, etc. Breweries Condiments, Coffee, Spices, etc. Distilleries Ice and Refrigerating Malting Tobacco, Cigars, etc.	CLASS XII.—SHIP AND BOAT BUILDING AND REPAIRING. Docks and Slips Ship and Boat Building and Repairing
CLASS II.—OILS AND FATS, ETC. Oil and Grease Soap and Candles	CLASS VII.—CLOTHING AND TEXTILE FABRICS.	CLASS XIII.—FURNITURE, BEDDING, ETC. Bedding, Flock, and Upholstery Billiard Tables Furniture and Cabinet Making Picture Frames Window Blinds
CLASS III.—STONE, CLAY, GLASS, ETC. Bricks and Tiles Glass (including Bottles) Glass (Ornamental) Lime, Plaster, Cement and Asphalt Marble, Slate, etc. Modelling, etc. Pottery and Earthenware	Woollen and Tweed Mills Boots and Shoes Slop Clothing Clothing (Tailoring) Dressmaking and Millinery— Makers' material Customers' material Dyeworks and Cleaning Furriers Hats and Caps Waterproof and Oilskin Shirts, Ties, and Scarfs Rope and Cordage Tents and Tarpaulins Sailmaking	CLASS XIV.—DRUGS AND CHEMICALS, ETC. Chemicals, Drugs, and Medicines Fertilizers Paints, Varnishes, and By-products
CLASS IV.—WORKING IN WOOD. Boxes and Cases Cooperage Joinery Saw Mills Wood-turning, etc.	CLASS VIII.—BOOKS, PAPER, PRINTING, ETC.	CLASS XV.—SURGICAL AND OTHER SCIENTIFIC INSTRUMENTS. Surgical, Optical, and other Scientific Instruments
CLASS V.—METAL WORKS, MACHINERY, ETC. Agricultural Implements Brass and Copper Cutlery Engineering Galvanised Iron-working Ironworks and Foundries Lead Mills Railway Carriages Railway and Tramway Workshops Smelting Stoves and Ovens Tinsmithing Wireworking Other Metal Works	Electrotyping and Stereotyping Paper-making, Paper Boxes, Bags, etc. Photo-engraving Printing and Binding	CLASS XVI.—TIMEPIECES, JEWELLERY, AND PLATED WARE. Electro-plating Manufacturing Jewellery, etc.
CLASS VI.—FOOD AND DRINK, ETC.	CLASS IX.—MUSICAL INSTRUMENTS, ETC.	CLASS XVII.—HEAT, LIGHT, AND POWER.
Bacon Curing Butter Factories Butterine and Margarine Cheese Factories Condensed Milk Meat and Fish Preserving Biscuits	Musical Instruments and Sewing Machines	Coke Works Electric Apparatus Electric Light and Power Gas Works and Kerosene Lamps and Fittings, etc. Hydraulic Power
	CLASS X.—ARMS AND EXPLOSIVES.	CLASS XVIII.—LEATHERWARE (N.E.I.). Leather Belting, Fancy Leather, Portmanteaux and Bags
	CLASS XI.—VEHICLES, SADDLERY, HARNESS, ETC.	CLASS XIX.—MINOR WARES. Basket and Wickerware, Matting, etc. Brooms and Brushware Rubber Goods Toys Umbrellas Other Industries
	Coach and Wagon Building Cycles and Motors Perambulators Saddlery, Harness, etc. Spokes, etc.	

§ 2. Number of Factories.

1. **General.**—The presentation of the number of factories in each State does not furnish a clear indication of the extent or progress of the manufacturing industry throughout Australia. Experience has shewn that the smaller establishments in many branches of industry tend to disappear before the superior competitive facilities of larger enterprises. On the other hand, new factories are constantly under construction in districts advantageously located for manufacturing purposes, and small plants are as numerous as large ones.

(i) *Total Number of Factories in each State, 1916 to 1920-21.* The following table presents, for the years 1916 to 1920-21, the total number of factories in each State of the Commonwealth:—

FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1916a ..	5,210	5,413	1,782	1,266	771	568	15,010
1917b ..	5,356	5,445	1,793	1,286	759	540	15,179
1918b ..	5,414	5,627	1,778	1,285	764	553	15,421
1918-19c	5,460	5,720	1,778	1,313	764	553	15,588
1919-20c	5,662	6,038	1,754	1,368	817	652	16,291
1920-21c ..	5,837	6,532	1,795	1,438	895	616	17,113

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

(ii) *Classification of Factories in Commonwealth, 1916 to 1920-21.* The following table shows the total number of factories in the Commonwealth for each year from 1916 to 1920-21, classified on the basis indicated in § 1, 3 hereof:—

CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.

Class of Industry.	1916.(a)	1917.(b)	1918.(b)	1918-19 (c)	1919-20 (c)	1920-21 (c)
	No.	No.	No.	No.	No.	No.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	817	797	798	789	799	772
II. Treating oils and fats, animal, vegetable, etc. ..	96	92	90	88	92	92
III. Processes in stone, clay, glass, etc.	626	606	616	643	670	707
IV. Working in wood	1,661	1,646	1,713	1,762	1,912	2,053
V. Metal works, machinery, etc.	1,832	1,802	1,836	1,872	1,974	2,133
VI. Connected with food and drink, etc.	2,372	2,403	2,402	2,420	2,427	2,453
VII. Clothing and textile fabrics, etc.	3,085	3,176	3,177	3,155	3,311	3,499
VIII. Books, paper, printing and engraving	1,225	1,232	1,256	1,220	1,247	1,259
IX. Musical instruments, etc.	20	25	27	31	37	43
X. Arms and explosives	21	17	18	17	17	17
XI. Vehicles and fittings, saddlery and harness, etc. ..	1,334	1,374	1,423	1,449	1,514	1,634
XII. Ship and boat building and repairing	72	74	75	76	80	79
XIII. Furniture, bedding, and upholstery	697	704	722	743	817	916
XIV. Drugs, chemicals, and by-products	207	238	260	273	293	305
XV. Surgical and other scientific instruments	51	63	67	72	71	73
XVI. Jewellery, timepieces, and platedware	195	190	187	194	215	233
XVII. Heat, light, and power	466	479	489	505	515	529
XVIII. Leatherware, n.e.l.	69	74	81	83	93	101
XIX. Minor wares, n.e.l.	164	187	184	196	207	215
Total	15,010	15,179	15,421	15,588	16,291	17,113

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

For the purpose of the returns in the above table the definition of a factory adopted at the Conference of Statisticians in 1902 (see § 1, 2 hereof) is used, viz., "Any factory, workshop or mill where four or more persons are employed or power is used."

The total number of factories has increased continuously since 1916, but the expansion has been more marked during the past two years, when the annual additions amounted to 703 and 822 new establishments respectively. As previously pointed out, any increase or decrease in the number of factories from year to year does not necessarily indicate a change in the position of the industry.

(iii) *Classification of Factories in each State, 1920-21.* The following table shows the number of factories in each State of the Commonwealth during 1920-21, classified according to the nature of the industry. (See classification given in § 1, 3 hereof):—

CLASSIFICATION OF FACTORIES IN EACH STATE, 1920-21.

Class of Industry.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'with.
I. Treating raw material, product of agricul. & pastoral pursuits, etc.	221	302	44	108	44a	53	772
II. Treating oils and fats, animal, vegetable, etc.	38	27	13	11	(b)	3	92
III. Processes in stone, clay, glass, etc.	299	208	42	95	41	22	707
IV. Working in wood	798	580	304	90	117	164	2,053
V. Metal works, machinery, etc.	717	383	217	193	76	47	2,133
VI. Connected with food & drink, etc.	782	700	467	233	162	109	2,458
VII. Clothing and textile fabrics, etc.	1,066	1,709	237	269	143	75	3,499
VIII. Books, paper, printing & engraving	474	454	140	87	79	25	1,259
IX. Musical instruments, etc.	24	16	..	3	..	..	43
X. Arms and explosives	4	11	..	2	..	..	17
XI. Vehicles and fittings, saddlery and harness, etc.	508	674	147	162	90	53	1,634
XII. Ship and boat building & repairing	37	12	9	10	5	6	79
XIII. Furniture, bedding and upholstery	297	366	94	72	48	19	916
XIV. Drugs, chemicals, and by-products	126	131	3	18	18	9	305
XV. Surgical and other scientific instruments	15	34	8	8	8	..	73
XVI. Jewellery, timepieces & platedware	71	107	18	19	10	8	233
XVII. Heat, light, and power	235	180	81	33	34	16	529
XVIII. Leatherware, n.e.l.	34	53	6	4	3	1	101
XIX. Minor wares, n.e.l.	91	65	15	21	17	6	215
Total	5,837	6,532	1,795	1,438	895	616	17,118

(a) Includes Class II.

(b) Included in Class I.

§ 3. Factories Classified by Number of Employees.

1. General.—A more scientific method of measuring the size of the manufacturing establishments in Australia is furnished by an analysis of the factories grouped according to the average number of employees in each.

The following table shews, for each State, the number of factories classified according to number of hands employed, and the average number of hands employed therein, during 1920-21 :—

CLASSIFICATION OF FACTORIES IN EACH STATE ACCORDING TO NUMBER OF HANDS EMPLOYED, 1920-21.

No. of Persons Employed in each Factory.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tasmania. 1920.	C'wealth.
NUMBER OF FACTORIES.							
Under 4 ..	1,066	1,240	319	194	186	117	3,062
4 ..	500	685	179	128	91	66	1,649
5 to 10 ..	1,936	2,201	543	535	299	218	5,732
11 to 20 ..	1,064	1,069	325	258	148	89	2,953
21 to 50 ..	820	849	257	207	109	85	2,327
51 to 100 ..	265	259	80	69	33	33	739
Over 100 ..	246	229	92	47	29	8	651
Total ..	5,837	6,532	1,795	1,438	895	616	17,118

AVERAGE NUMBER OF HANDS EMPLOYED.

Under 4 ..	2,256	2,819	723	481	411	268	6,958
4 ..	2,000	2,740	716	512	364	264	6,596
5 to 10 ..	13,462	15,289	3,838	3,727	2,070	1,478	39,864
11 to 20 ..	15,469	15,554	4,803	3,715	2,172	1,248	42,961
21 to 50 ..	26,036	26,917	8,023	6,405	3,608	2,625	73,584
51 to 100 ..	18,061	17,566	5,671	4,830	2,192	2,403	50,723
Over 100 ..	67,757	59,858	19,422	10,760	6,217	1,939	165,953
Total	145,011	140,743	43,196	30,430	17,034	10,225	386,639

Reference to the following table will shew a tendency for the proportionate number of hands employed in the larger establishments to still further increase and for that of the smaller factories to diminish. During the quinquennial period under discussion, the ratio of hands in factories employing under 21 hands to total number of employees in all factories shews a decline from 26.29 per cent. in 1916 to 24.93 in 1920-21. The larger establishments with 101 hands and upwards during the same period exhibit an increase from 42.74 to 42.92 per cent. of total employed. The average number of hands per establishment in 1916 was 21.10, and in 1920-21, 22.59.

CLASSIFICATION OF FACTORIES IN THE COMMONWEALTH ACCORDING TO NUMBER OF HANDS EMPLOYED DURING THE YEARS 1916 TO 1920-21.

Year.	Establishments Employing on the Average—							
	20 hands and under.		21 to 100 hands.		101 hands and upwards.		Total.	
	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.	Es- tablish- ments.	Hands.
1916(a)—								
Number	12,081	83,263	2,386	98,107	543	135,382	15,010	316,752
Average per establishment ..	..	6.89	..	41.11	..	249.32	..	21.10
Percentage on total ..	80.49	26.29	15.90	30.97	3.61	42.74	100.00	100.00
1917(b)—								
Number	12,158	84,685	2,491	102,695	530	134,290	15,179	321,670
Average per establishment ..	..	6.97	..	41.23	..	253.38	..	21.19
Percentage on total ..	80.10	26.33	16.41	31.92	3.49	41.75	100.00	100.00
1918(b)—								
Number	12,240	85,425	2,635	108,782	546	133,842	15,421	328,049
Average per establishment ..	..	6.98	..	41.28	..	245.13	..	21.27
Percentage on total ..	79.37	26.04	17.09	33.16	3.54	40.80	100.00	100.00
1918-19(c)—								
Number	12,324	87,604	2,695	111,342	569	141,529	15,588	340,475
Average per establishment ..	..	7.11	..	41.31	..	248.73	..	21.84
Percentage on total ..	79.06	25.73	17.29	32.70	3.65	41.57	100.00	100.00
1919-20(c)—								
Number	12,666	92,010	2,975	121,388	650	163,336	16,291	376,734
Average per establishment ..	..	7.26	..	40.80	..	251.29	..	23.13
Percentage on total ..	77.75	24.42	18.26	32.22	3.99	43.36	100.00	100.00
1920-21(c)—								
Number	13,396	96,379	3,066	124,307	651	165,953	17,113	386,639
Average per establishment ..	..	7.19	..	40.54	..	254.92	..	22.59
Percentage on total ..	78.23	24.93	17.92	32.15	3.80	42.92	100.00	100.00

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

§ 4. Factories Using Mechanical Power.

1. Use of Mechanical Power.—The statistics relating to the utilization of mechanical power in factories bring into relief another phase of industrial development in Australia.

The following tables reveal a gradual increase in the number of factories using mechanical power, and a more striking increase in the amount of power used, while a marked decline is noticeable in the number of factories using no power, thus affording definite statistical evidence of the growth of power-driven machinery in Australia, and of its increasing ascendancy over hand labour.

The principal motive power is steam, but the chief towns possess electric power stations owned either by the Government, or by public bodies or private companies, from which many factories find it convenient to derive their motive power.

(i) *Utilization of Mechanical Power in Factories in each State.* The following table shews the number of factories in which machinery was worked by steam, gas, oil, electricity,

or water and the horse-power of engines or motors used, in each State and in the Commonwealth during 1920-21 :—

UTILIZATION OF MECHANICAL POWER IN FACTORIES IN EACH STATE, 1920-21.

State.	Number of Establishments.			Actual Horse-power of Engines Used.					
	Using Machinery worked by Steam, Gas, Oil, Electricity, or Water.	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Water.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
N.S.W., 1920-21	5,002	835	5,837	192,816	13,242	2,381	103,846	24	312,309
Vict., 1920-21 ..	5,134	1,398	6,532	103,048	19,331	3,162	56,602	..	182,143
Q'land., 1920 ..	1,406	389	1,795	65,081	10,861	1,949	19,876	580	98,347
S. Aust., 1920-21	1,137	301	1,438	34,784	10,019	2,368	10,263	223	57,057
W. Aust., 1920 ..	745	150	895	37,411	5,685	1,842	9,114	..	54,052
Tas., 1920 ..	519	97	616	4,711	227	182	18,215	14,638	37,973
Commonwealth	13,943	3,170	17,113	437,851	59,365	11,884	217,916	15,465	742,481

The preponderance of horse-power employed in the New South Wales factories is the result of the location in that State of the largest number of industries demanding a considerable amount of power; Victoria, on the other hand, has the largest number of establishments, such as those connected with clothing and textile fabrics, wherein much less mechanical power is utilized.

The number of establishments in the Commonwealth during 1920-21 using machinery worked by steam, gas, oil, electricity, or water was 13,943, or 81.48 per cent. of the total; 3,170 establishments, representing 18.52 per cent., used no mechanical power. The total actual horse-power in use was 742,481, distributed in the following proportions :—Steam, 58.97 per cent.; gas, 8.00 per cent.; oil, 1.60 per cent.; electricity, 29.35 per cent.; and water, 2.08 per cent.

(ii) *Utilization of Mechanical Power used in Factories in the Commonwealth, 1916 to 1920-21.* The following table shews the horse-power of engines used in connexion with factories in the Commonwealth during each of the last six years :—

UTILIZATION OF MECHANICAL POWER IN FACTORIES IN COMMONWEALTH, 1916 TO 1920-21.

Year.	Number of Establishments.			Actual Horse-power of Engines used.					
	Using Machinery worked by Steam, Gas, Oil, Electricity or Water.	Others.	Total.	Steam.	Gas.	Oil.	Electricity.	Water.	Total.
	No.	No.	No.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
1916(a) ..	11,550	3,460	15,010	349,157	53,921	8,541	118,149	..	529,768
1917(b) ..	11,931	3,248	15,179	358,346	54,825	8,687	131,819	6,584	560,261
1918(b) ..	12,250	3,171	15,421	384,794	56,137	8,576	148,732	12,087	610,326
1918-19(c) ..	12,385	3,203	15,588	392,972	56,437	9,056	159,372	12,109	629,946
1919-20(c) ..	13,146	3,145	16,291	402,152	58,349	11,872	176,476	11,167	660,016
1920-21(c) ..	13,943	3,170	17,113	437,851	59,365	11,884	217,916	15,465	742,481

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See Note (c), first table this Section.

From this table it appears that the number of manufacturing establishments using power increased from 11,550 in 1916 to 13,943 in 1920-21, an increase of 2,393, or 20.72 per cent. During the same period the number of establishments using no power decreased from 3,460 to 3,170, a decrease of 290, or 8.38 per cent. The corresponding increase in the actual horse-power of engines used was 212,713, or 40.15 per cent.

(iii) *Classification of Mechanical Power Used in Factories in each State.* The following table gives a classification of the actual horse-power of engines used in factories of different descriptions in each State during 1920-21 :—

**ACTUAL HORSE-POWER OF ENGINES USED IN VARIOUS FACTORIES
IN EACH STATE, 1920-21.**

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	9,336	8,255	1,367	2,245	(a) 766	506	22,475
II. Treating oils and fats, animal, vegetable, etc. . .	2,027	631	155	257	(b)	28	3,098
III. Processes in stone, clay, glass, etc. . .	21,654	8,431	2,552	4,030	1,315	308	38,290
IV. Working in wood . .	19,760	16,04	10,584	2,461	8,598	2,761	60,363
V. Metal works, machinery, etc. . .	70,104	18,398	13,219	6,590	3,920	10,513	122,744
VI. Connected with food and drink, etc. . .	34,278	34,032	37,722	8,641	7,850	2,027	124,550
VII. Clothing and textile fabrics, etc. . .	7,680	13,397	1,516	1,010	341	398	24,342
VIII. Books, paper, printing, and engraving . .	7,757	6,752	1,524	1,267	673	228	18,201
IX. Musical instruments, etc. . .	438	252	..	14	..	..	704
X. Arms and explosives . .	757	685	..	4	..	..	1,446
XI. Vehicles and fittings, saddlery and harness, etc. . .	2,242	2,088	539	1,066	299	176	6,410
XII. Ship and boat building and repairing . .	8,119	1,438	98	351	38	32	10,076
XIII. Furniture, bedding, and upholstery . .	2,682	2,413	1,130	1,169	596	237	8,227
XIV. Drugs, chemicals, and by-products . .	3,202	3,424	14	2,583	1,070	39	10,332
XV. Surgical and other scientific instruments . .	59	48	22	15	12	..	156
XVI. Jewellery, timepieces, and plated ware . .	361	864	48	80	21	11	885
XVII. Heat, light, and power . .	120,482	57,567	27,779	25,624	28,457	20,680	280,589
XVIII. Leatherware, n.e.l. . .	165	424	18	3	5	1	616
XIX. Minor wares, n.e.l. . .	1,206	7,340	60	247	96	28	8,977
Total . . .	312,309	182,143	98,847	57,657	54,032	37,973	742,481

(a) Includes Class II.

(b) Included in Class I.

(iv) *Classification of Mechanical Power Used in Factories in the Commonwealth, 1916 to 1920-21.* The following table shews a similar classification of the actual horse-power of engines used in manufacturing industries in the Commonwealth during the years 1916 to 1920-21 inclusive :—

**ACTUAL HORSE-POWER OF ENGINES USED IN VARIOUS FACTORIES IN THE
COMMONWEALTH, 1916 TO 1920-21.**

Class of Industry.	1916. (a)	1917. (b)	1918. (b)	1918-19. (c)	1919-20 (c)	1920-21. (c)
	H.P.	H.P.	H.P.	H.P.	H.P.	H.P.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	15,963	15,483	17,842	18,832	21,005	22,475
II. Treating oils and fats, animal, vegetable, etc. . .	2,435	2,140	2,282	2,701	3,109	3,098
III. Processes in stone, clay, glass, etc. . .	24,736	24,275	26,383	27,449	31,302	38,290
IV. Working in wood . .	45,997	45,712	47,560	44,499	53,656	60,363
V. Metal works, machinery, etc. . .	85,733	86,991	94,434	99,681	104,792	122,744
VI. Connected with food and drink, etc. . .	94,477	100,803	105,390	110,267	120,408	124,550
VII. Clothing and textile fabrics, etc. . .	16,353	17,923	18,362	19,428	22,014	24,342
VIII. Books, paper, printing, and engraving . .	14,125	14,590	16,225	16,246	17,444	18,201
IX. Musical instruments, etc. . .	448	613	664	501	540	704
X. Arms and explosives . .	..	1,739	1,547	1,725	2,192	1,446
XI. Vehicles and fittings, saddlery and harness, etc. . .	4,310	4,620	4,851	5,292	5,770	6,410
XII. Ship and boat building and repairing . .	4,333	5,445	5,310	6,239	6,800	10,076
XIII. Furniture, bedding, and upholstery . .	5,894	5,876	6,576	6,691	7,667	8,227
XIV. Drugs, chemicals, and by-products . .	6,555	7,386	8,102	8,179	9,611	10,332
XV. Surgical and other scientific instruments . .	72	109	120	124	145	156
XVI. Jewellery, timepieces, and plated ware . .	586	658	635	672	839	885
XVII. Heat, light, and power . .	202,232	217,980	245,767	249,199	241,893	280,589
XVIII. Leatherware, n.e.l. . .	377	444	512	599	571	616
XIX. Minor wares, n.e.l. . .	4,232	7,474	7,764	7,622	8,178	8,977
Total . . .	529,768	560,261	610,326	629,946	660,016	742,481

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

From the above table it will be seen that the actual horse-power of engines used increased in every branch of industry during the last five years. The industries using the greatest amount of power were Class XVII. Heat, light, and power; Class VI. Connected with food and drink; and Class V. Metal works, machinery, etc. These three classes, which together accounted for 71 per cent. of the total power used in 1920-21, increased their horse-power from 382,442 to 527,883 during the five years under review, and are mainly responsible for the development of mechanical power in factories since 1916.

§ 5. Numbers Employed in Australian Factories.

1. **Total Number Employed.**—Each person employed in and about a factory, in whatever capacity, is now included as a factory employee, consequently every proprietor who works in his business is counted as an employee, and all "outworkers" (see paragraph 5 hereinafter) are also included. The individuals embraced may be classed under the following heads, viz.:—(i) Working proprietors; (ii) managers and overseers; (iii) accountants and clerks; (iv) engine-drivers and firemen; (v) skilled and unskilled workers in the factories, mills, or workshops; (vi) carters and messengers; and (vii) others.

(i) *Average Numbers Employed, 1916 to 1920-21.* The following table shews, for each year from 1916 to 1920-21 inclusive, (a) the average numbers of persons (including both sexes and all ages) employed in manufacturing industries in each State; (b) the percentage of the numbers employed in each State on the total numbers employed in the Commonwealth; and (c) the numbers employed per ten thousand of the mean population in each State and the Commonwealth:—

AVERAGE NUMBER OF PERSONS EMPLOYED IN MANUFACTURING INDUSTRIES, 1916 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
AVERAGE NUMBER.							
1916(a)	116,401	113,834	39,983	25,496	12,676	8,362	316,752
1917(b)	117,997	116,970	40,446	26,010	12,168	8,079	321,670
1918(b)	120,554	118,241	40,990	26,634	12,917	8,713	328,049
1918-19(c)	127,591	122,349	40,990	27,915	12,917	8,713	340,475
1919-20(c)	144,454	136,522	40,891	29,442	15,409	10,016	376,734
1920-21(c)	145,011	140,743	43,196	30,430	17,034	10,225	386,639

PERCENTAGE ON COMMONWEALTH TOTAL.

	%	%	%	%	%	%	%
1916(a)	36.75	35.94	12.62	8.05	4.00	2.64	100.00
1917(b)	36.68	36.37	12.57	8.09	3.78	2.51	100.00
1918(b)	36.75	36.04	12.49	8.12	3.94	2.66	100.00
1918-19(c)	37.48	35.93	12.04	8.20	3.79	2.56	100.00
1919-20(c)	38.34	36.24	10.85	7.82	4.09	2.66	100.00
1920-21(c)	37.51	36.40	11.17	7.87	4.41	2.64	100.00

PER 10,000 OF MEAN POPULATION.

1916(a)	615	795	583	571	405	430	637
1917(b)	626	833	592	589	392	626	654
1918(b)	628	834	586	596	420	439	657
1918-19(c)	650	851	586	610	420	439	672
1919-20(c)	709	908	564	611	482	488	714
1920-21(c)	693	921	578	620	517	486	715

(a) See note (a) first table this section. (b) See note (b) first table this section.
(c) See note (c) first table this section.

(ii) *Rules of Increase, 1916 to 1920-21.* The following table shows the percentage of increase or decrease on the average number of persons employed for the preceding year from 1917 to 1920-21. The figures for the past five years are somewhat vitiated by the change in dates of collecting the statistics in New South Wales, Victoria, and South Australia :—

PERCENTAGE OF INCREASE ON AVERAGE NUMBER EMPLOYED, 1917 TO 1920-21.

Years.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	%	%	%	%	%	%	%
1916-17(b) ..	1.37	2.75	1.16	2.02	- 4.01	-3.38	1.55
1917-18(b) ..	2.17	1.09	1.35	2.40	6.16	7.85	1.98
1918-1918-19(c) ..	5.84	3.47	1.35a	4.81	6.16a	7.85a	3.79
1918-19—1919-20(c)	13.22	11.58	-0.24	5.47	19.29	14.95	10.65
1919-20—1920-21(c)	0.39	3.39	5.64	0.36	10.55	2.09	2.63

NOTE.—The minus sign (—) indicates decrease.

(a) Twelve months ended 31st December, 1918.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

2. *Classification of Numbers Employed in Factories in the Commonwealth, 1916 to 1920-21.*—The following table gives a classification of the average numbers of persons employed in factories of different descriptions in the Commonwealth during the years 1916 to 1920-21 inclusive :—

AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES
IN THE COMMONWEALTH, 1916 TO 1920-21.

Class of Industry.	1916.(a)	1917. (b)	1918.(b)	(c) 1918-19.	(c) 1919-20.	(c) 1920-21.
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	9,000	9,411	9,984	10,775	12,040	10,494
II. Treating oils and fats, animal, vegetable, etc. ..	2,399	2,554	2,726	2,604	3,075	2,848
III. Processes in stone, clay, glass, etc. ..	11,604	10,949	12,575	13,761	16,271	18,311
IV. Working in wood ..	23,336	22,079	24,112	25,825	29,365	31,942
V. Metal works, machinery, etc. ..	65,850	62,115	60,392	62,679	70,025	80,550
VI. Connected with food and drink, etc. ..	48,272	52,781	56,297	59,891	61,757	57,599
VII. Clothing and textile fabrics, etc. ..	80,292	83,201	82,002	81,441	89,424	88,577
VIII. Books, paper, printing and engraving ..	21,990	24,954	25,054	25,000	26,826	27,522
IX. Musical instruments, etc. ..	542	652	677	714	902	1,065
X. Arms and explosives ..	2,571	2,951	2,225	1,986	1,662	1,504
XI. Vehicles and fittings, saddlery and harness, etc. ..	12,006	12,196	12,672	13,630	15,525	16,334
XII. Ship and boat building and repairing ..	4,605	4,953	4,569	6,119	8,343	6,702
XIII. Furniture, bedding, and upholstery ..	8,716	9,072	9,542	9,827	11,317	11,827
XIV. Drugs, chemicals, and by-products ..	4,738	5,036	5,564	5,861	6,436	6,805
XV. Surgical & other scientific instruments ..	293	361	415	463	495	548
XVI. Jewellery, timepieces, and plated ware ..	1,835	1,975	2,119	2,345	2,719	2,707
XVII. Heat, light, and power ..	10,918	10,329	10,714	10,912	11,991	12,770
XVIII. Leatherware, n.e.l. ..	1,378	1,488	1,647	1,769	2,233	2,191
XIX. Minor wares, n.e.l. ..	4,400	4,613	4,763	4,853	5,828	6,343
Total ..	316,752	321,670	328,049	340,475	376,734	386,639

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See Note (c) first Table this Section.

The number of persons employed in factories has, like the number of factories, increased annually since 1916, the increases likewise being more marked during the last two years. The average annual increases during the past five years have been 421 factories and 13,977 employees.

3. Classification of Numbers Employed in each State, according to Class of Industry.—The following table shews a similar classification of employees in manufacturing industries in each State during 1920-21 :—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN VARIOUS FACTORIES
IN EACH STATE, 1920-21.**

Class of Industry.	N.S.W. 1920-21.	Vic. 1920-21	Q'land. 1920.	S.A. 1920-21	W.A. 1920.	Tas. 1920.	C'wth.
I. Treating raw material, product of agricul. and pastoral pursuits, etc.	3,840	4,045	730	1,017	451a	411	10,494
II. Treating oils and fats, animal, vegetable, etc.	1,584	835	171	231	(b)	27	2,848
III. Processes in stone, clay, glass, etc.	8,829	5,486	940	2,074	695	287	18,311
IV. Working in wood	9,157	9,529	5,377	1,493	4,339	2,047	31,942
V. Metal works, machinery, etc.	36,860	23,534	7,639	7,900	2,814	1,803	80,550
VI. Connected with food and drink, etc.	17,874	17,673	13,725	3,839	2,540	1,948	57,599
VII. Clothing and textile fabrics, etc.	28,298	44,341	6,857	5,316	2,403	1,362	88,577
VIII. Books, paper, printing, and engraving	10,527	9,933	3,100	1,958	1,215	789	27,522
IX. Musical instruments, etc.	642	384	..	39	..	..	1,065
X. Arms and explosives	850	650	..	4	..	..	1,504
XI. Vehicles and fittings, saddlery, and harness, etc.	5,267	6,087	1,364	2,257	763	596	16,334
XII. Ship and boat building & repairing	5,175	900	120	434	19	54	6,702
XIII. Furniture, bedding and upholstery	4,312	3,917	1,429	1,118	603	448	11,827
XIV. Drugs, chemicals, and by-products	2,659	2,654	118	883	468	23	6,805
XV. Surgical and other scientific instruments	206	199	66	40	37	..	548
XVI. Jewellery timepieces, & plated ware	828	1,397	167	195	78	42	2,707
XVII. Heat, light, and power	5,038	4,738	1,067	1,222	371	334	12,770
XVIII. Leatherware, n.e.l.	919	1,057	123	58	25	9	2,191
XIX. Minor wares, n.e.l.	2,146	3,384	203	352	213	45	6,343
Total	145,011	140,743	43,196	30,430	17,034	10,225	386,639

(a) Includes Class II.

(b) Included in Class I.

The largest number employed in any particular class in the Commonwealth during 1920-21 was in Class VII., in which there were 88,577 employees, or 23 per cent. of the whole number. The class affording employment to the smallest number of hands was Class XV., in which there were 548 hands, or 0.14 per cent. of the total number of employees. Classes VI., VII., and VIII. comprise those industries in which female labour is largely employed. (See § 6, 5 hereof.)

4. Classification of Numbers Employed in each State according to Nature of Employment.—In the following table the average numbers of persons employed in each State during 1920-21 are classified according to the nature of their employment :—

**AVERAGE NUMBER OF PERSONS EMPLOYED IN EACH STATE, CLASSIFIED
ACCORDING TO NATURE OF EMPLOYMENT, 1920-21.**

State.	Average Number of Persons Employed.						Total.
	Working Proprietors.	Managers and Overseers.	Accountants and Clerks.	Engine-drivers and Firemen.	Workers, Skilled & Unskilled in Factory Mill or Workshop (a)	Carters, Messengers and Others.	
N.S. Wales, 1920-21	4,553	5,274	6,654	3,062	123,571	1,897	145,011
Victoria, 1920-21 ..	6,645	4,354	6,106	2,108	117,801	3,729	140,743
Queensland, 1920 ..	1,495	1,804	2,088	1,882	33,315	2,612	43,196
S. Australia, 1920-21	1,284	1,100	1,642	559	25,248	597	30,430
W. Australia, 1920	498	897	753	423	13,862	601	17,034
Tasmania, 1920 ..	413	427	532	347	8,180	326	10,225
Commonwealth	14,888	13,856	17,775	8,381	321,977	9,762	386,639

(a) Including outworkers.

5. Outworkers.—The term “outworker” or “homeworker” has acquired a special meaning in connexion with manufacturing industries, and technically embraces only those to whom work is given out by factory owners to be wrought upon in the employees' own homes. Individuals working for themselves are not included. The following table gives particulars of the average number of outworkers connected with factories in each State during each year from 1916 to 1920-21 inclusive:—

NUMBER OF OUTWORKERS^(a) CONNECTED WITH FACTORIES, 1916 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
1916 ^(b)	577	1,473	99	44	6	35	2,234
1917 ^(c)	677	1,814	89	41	5	32	2,658
1918 ^(c)	637	1,406	30	25	4	20	2,122
1918-1919 ^(d) ..	582	1,022	30	57	4	20	1,715
1919-1920 ^(d) ..	733	1,492	19	50	8	28	2,330
1920-1921 ^(d) ..	471	1,151	41	68	14	45	1,790

(a) In all tables relating to number of hands employed in factories, outworkers are included.

(b) See note (a) first table this section.

(c) See note (b) first table this section.

(d) See note (c) first table this section.

The Factories Acts in each State contain provisions regulating the employment of outworkers. Generally, records of out-work must be kept by factory proprietors, specifying the names and remuneration of workers, and stating the places where the work is done. Further particulars are given in a later part of this book. (See Section relating to *Labour, Wages, Prices, etc.*)

§ 6. Sex Distribution in Factories.

1. Employment of Females in Factories.—In all the States the employment of female labour in factories is now regulated by Act of Parliament. In Victoria the first Act dealing with the subject was passed in the year 1873, and provided that no female should be employed for more than eight hours a day without the permission of the Chief Secretary. The number of working hours for women is now limited to forty-eight per week in all the States with the exception of Western Australia where the limitation is 44 per week. Overtime is allowed only with the permission of the Departments, and then to a limited extent. The maximum periods of continuous labour, and the intervals of cessation therefrom, are also prescribed by the several Acts. Further reference is made to the restrictions regarding the employment of females in a later part of this book. (See Section relating to *Labour, Wages, Prices, etc.*)

2. Distribution of Employees according to Sex.—In New South Wales the ratio of the number of females employed in factories to the number of males during 1886 was about one to seven; in 1891 one to six; in 1903 it became about one to four; and is now less than one to three. In Victoria the ratio of females to males during the year 1886 was about one to five. Five years later (1891) it was somewhat less, but in 1896 had increased to about one woman to three men, and at present is less than one to two. In South Australia the ratio at the latest date was one female employed to every four males, while Queensland and Western Australia were about one to five, and Tasmania one to six. The ratio for the whole of the Commonwealth was less than one to three. The employment of women is, however, mainly confined to a few trades.

The great prosperity in clothing and textile industries is one of the main causes of increase in female employment. Certain trades are specifically known as women's trades, such as clothing and textile trades, preparation of food, book-binding, and lighter work connected with the drug trade, as, for example, wrapping. In common also with commercial establishments, a considerable number of factories employ women as clerks and typists.

(i) *Average Number of Males and Females Employed, 1916 to 1920-21.* The following table shews the average number of male and female employees in factories in each State from 1916 to 1920-21 :—

AVERAGE NUMBER OF MALES AND FEMALES EMPLOYED IN MANUFACTURING INDUSTRIES, 1916 TO 1920-21.

State.	1916.(a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920-21.(c)
MALES.						
New South Wales ..	87,724	88,910	90,025	96,884	109,836	112,187
Victoria ..	75,971	74,924	76,654	81,357	92,101	96,379
Queensland ..	32,235	32,763	33,597	33,597	33,851	36,011
South Australia ..	20,772	20,798	21,325	22,372	23,434	24,548
Western Australia ..	10,259	9,704	10,497	10,497	12,789	14,329
Tasmania ..	7,046	6,860	7,356	7,356	8,503	8,746
Commonwealth ..	234,007	233,959	239,454	252,063	280,514	292,200
FEMALES.						
New South Wales ..	28,677	29,087	30,529	30,707	34,618	32,824
Victoria ..	37,863	42,046	41,587	40,992	44,421	44,364
Queensland ..	7,748	7,683	7,393	7,393	7,040	7,185
South Australia ..	4,724	5,212	5,309	5,543	6,008	5,882
Western Australia ..	2,417	2,464	2,420	2,420	2,620	2,705
Tasmania ..	1,316	1,219	1,357	1,357	1,513	1,479
Commonwealth ..	82,745	87,711	88,595	88,412	96,220	94,439

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

It will be seen that during the years specified there has been for the whole Commonwealth a total increase in the number of male employees of 58,193, or an annual average of 11,639, whilst the number of female employees has shewn a total increase of 11,694 or an annual average of 2,339.

(ii) *Average Number of Males and Females Employed per 10,000 of Mean Population, 1916 to 1920-21.* The following table shews the average number of male and female employees per 10,000 of the mean male and female population respectively in each State from 1916 to 1920-21 :—

AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER 10,000 OF MEAN MALE AND FEMALE POPULATION RESPECTIVELY, 1916 TO 1920-21.

State.	1916.(a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920-21.(c)
MALES.						
New South Wales ..	920	940	938	984	1,054	1,051
Victoria ..	1,076	1,125	1,142	1,189	1,245	1,279
Queensland ..	892	925	931	931	895	910
South Australia ..	926	978	998	1,018	975	1,001
Western Australia ..	618	616	664	664	761	814
Tasmania ..	731	721	754	754	851	821
Commonwealth ..	924	960	971	1,004	1,048	1,063

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

AVERAGE NUMBER OF MALE AND FEMALE FACTORY EMPLOYEES PER 10,000 OF MEAN MALE AND FEMALE POPULATION RESPECTIVELY—*continued.*

State.	1916.(a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920 21.(c)
FEMALES.						
New South Wales ..	311	310	318	314	330	321
Victoria ..	522	569	557	544	582	573
Queensland ..	239	234	219	219	203	204
South Australia ..	213	227	228	233	249	239
Western Australia ..	165	166	161	161	173	176
Tasmania ..	134	123	135	135	148	142
Commonwealth ..	339	353	350	345	370	356

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

3. Rate of Variation for each Sex.—The percentages of annual increase or decrease during the years 1916 to 1920-21 in the average number of males and females employed in manufacturing industries in the several States and the Commonwealth are shown below :—

PERCENTAGE OF ANNUAL INCREASE IN NUMBERS OF MALE AND FEMALE EMPLOYEES, 1917 TO 1920-21.

State.	1916-17.(a)	1917-18.(a)	1918-19-18-19.(b)	1918-19-1919-20. (b)	1919-20- 1920-21.(b)
MALES.					
New South Wales ..	1.35	1.25	7.62	13.37	2.14
Victoria ..	-1.33	2.31	6.14	13.21	4.64
Queensland ..	1.64	2.55	(c) 2.55	0.76	6.38
South Australia ..	0.13	2.53	4.91	4.75	4.75
Western Australia..	-5.41	8.17	(c) 8.17	21.83	12.04
Tasmania ..	-2.64	7.23	(c) 7.23	15.59	2.86
Commonwealth	-0.02	2.35	5.27	11.29	4.17

FEMALES.

New South Wales ..	1.43	4.96	0.58	12.74	- 5.18
Victoria ..	11.05	-1.09	- 1.43	8.37	- 0.13
Queensland ..	- 0.84	-3.77	(c) - 3.77	- 4.77	- 2.06
South Australia ..	10.33	1.86	4.41	8.39	- 2.10
Western Australia..	1.94	-1.79	(c) - 1.79	8.26	3.24
Tasmania ..	- 7.37	11.32	(c) 11.32	11.50	- 2.25
Commonwealth	6.00	1.01	- 0.21	8.83	- 1.85

NOTE.—The minus sign (—) indicates decrease.

(a) See note (b) first table this section.

(b) See note (c) first table this section.

(c) Twelve months ended 31st December, 1918.

4. Ratio of Female Employment in Factories.—The extent to which females are employed in the factories of the Commonwealth may perhaps be best shewn by giving the masculinity of employees for each State for a series of years. The following table furnishes particulars for each of the years 1916 to 1920–21 inclusive:—

**EXCESS OF MALES OVER FEMALES PER 100 OF BOTH SEXES COMBINED,
1916 TO 1920–21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
1916(a) ..	50.7	33.5	61.2	62.9	61.9	68.5	47.8
1917(b) ..	50.7	28.1	62.0	59.9	59.5	69.8	45.5
1918(b) ..	49.4	29.7	63.9	60.1	62.5	68.9	46.0
1918–19(c) ..	51.9	33.0	63.9	60.3	62.5	68.9	48.1
1919–20(c) ..	52.1	34.9	65.6	59.2	66.0	69.8	48.9
1920–21(c) ..	54.7	37.0	66.7	61.3	68.2	71.1	51.1

(a) See note (a) first table this section. (b) See note (b) first table this section.
(c) See note (c) first table this section.

The excess of males over females employed per 100 of both sexes combined has increased from 47.8 in 1916 to 51.1 in 1920–21, the increase being noticeable in all the States with the exception of South Australia where a slight decline of 1.6 occurred during the past five years. The tables given in the succeeding paragraph shew that the comparatively high proportions of females have been due not so much to the incursion of female labour into what may be termed men's trades, as to the activity in those trades in which women are ordinarily engaged, more especially in dressmaking, millinery, etc.

5. Employment of Females in Particular Industries.—The employment of women in manufacturing industries in Australia is mainly confined to a few trades, of which the more important are comprised in Classes VI., VII., and VIII., viz., in connexion with food, drink, etc., clothing and textile fabrics, and books, paper, printing, etc. The following table shews the average number of females employed in each of these classes in each State during 1920–21, and also shews the percentages of the average number so employed on the total average number of females employed in all classes of factories:—

**AVERAGE NUMBER OF FEMALES EMPLOYED IN PARTICULAR INDUSTRIES,
AND PERCENTAGES ON AVERAGE TOTAL EMPLOYED, 1920–21.**

Class.	N.S.W. 1920–21.	Victoria. 1920–21.	Q'land. 1920.	S. Aust. 1920–21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
AVERAGE NUMBER.							
VI. Food, drink, etc. ..	5,580	4,730	920	694	380	326	12,630
VII. Clothing and textile fabrics ..	19,920	31,926	4,978	3,909	1,803	900	63,436
VIII. Books, paper, printing, etc. ..	2,978	3,004	733	612	264	126	7,717
All other classes ..	4,346	4,704	554	667	258	127	10,656
Total ..	32,824	44,364	7,185	5,882	2,705	1,479	94,439

PERCENTAGES ON TOTAL AVERAGE FEMALE EMPLOYEES.

VI. Food, drink, etc. ..	17.00	10.66	12.81	11.80	14.05	22.04	13.38
VII. Clothing and textile fabrics ..	60.69	71.96	69.28	66.46	66.65	60.85	67.17
VIII. Books, paper, printing, etc. ..	9.07	6.77	10.20	10.40	9.76	8.52	8.17
All other classes ..	13.24	10.61	7.71	11.34	9.54	8.59	11.28
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00

It will be seen that by far the greater part of the total number of females employed in factories work in one or other of the three classes of industry indicated, Class VII. being the most important. The classification of the employment of females in the several industries in that class, and the relation of their number to that of the males so employed, are shewn in the following table:—

FEMALE EMPLOYMENT IN EACH INDUSTRY IN CLASS VII. DURING 1920-21.

Industry.	New South Wales. 1920-21.			Victoria. 1920-21.			Other States.(a)		
	Males.	Females	Femini- nity. (b)	Males.	Females	Femini- nity. (b)	Males.	Females	Femini- nity. (b)
Woollen and tweed mills	849	801	-2.91	1,536	1,806	8.08	323	468	18.33
Boots and shoes ..	3,103	1,742	-28.09	5,630	3,582	-22.23	1,654	862	-31.48
Slop clothing	2,335	7,189	50.97	2,106	7,089	54.19	1,778	5,306	49.80
Clothing (tailoring)									
Dressmaking and millinery ..	168	4,543	92.87	333	8,780	92.69	27	3,005	98.22
Dyeworks and cleaning	180	127	-17.26	156	144	-4.00	42	43	1.18
Furriers ..	90	132	18.92	134	240	28.34	3	3	..
Hats and caps ..	593	863	18.54	709	880	8.76	66	99	20.00
Waterproof and oilskin	33	116	55.70	57	132	39.68	6	12	33.33
Shirts, ties, and scarfs	220	2,844	85.64	338	5,300	88.01	88	1,558	89.31
Hosiery and knitted goods ..	246	1,231	66.69	535	3,167	71.10	..	..	..
Rope and cordage ..	383	31	-85.02	732	484	-20.39	217	118	-29.55
Tents and tarpaulins ..	178	301	25.68	95	74	-12.43	121	62	-32.24
Other ..	..	..	..	54	248	64.24	23	54	40.26
Total, Class VII. ..	18,378	19,920	40.79	12,415	31,926	44.00	4,348	11,590	45.44

NOTE.—The minus sign (-) denotes excess of males over females

(a) See note (c) first table this section. (b) Excess of females over males per 100 of both sexes combined.

§ 7. Child Labour in Factories.

1. **Conditions of Child Labour.**—The employment of young persons in factories in each State of the Commonwealth is regulated by Acts of Parliament in a similar manner to the employment of female labour. Excepting under special circumstances children under a certain age may not be employed in factories. The minimum age in all the States is 14, with the exception of South Australia, where it is 13 years, and Victoria and Western Australia, where the minimum for females is 15 years. Other restrictions on the employment of young persons in factories are more particularly referred to in a later part of this book. (See Section relating to *Labour, Wages, Prices, etc.*) The general object of the restrictions imposed is to assure that a proper period shall be devoted to primary education and that the early years of toil shall not exhaust the worker before the attainment of full growth.

2. **Average Number of Children Employed in Factories, 1916 to 1920-21.**—In the statistical compilations of the various States the term "child" may be taken to denote any person under sixteen years of age. The following table shows the average number of children of each sex employed in manufacturing industries in each State during the years 1916 to 1920-21 :—

AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1916 TO 1920-21.

State.	1916.(a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920-21.(c)
MALES.						
New South Wales ..	2,578	2,604	2,584	2,586	3,824	3,673
Victoria ..	3,355	3,072	3,195	3,137	3,721	3,715
Queensland ..	1,197	1,170	1,171	1,171	1,214	1,266
South Australia ..	1,068	744	779	834	866	991
Western Australia ..	398	408	407	407	447	448
Tasmania ..	217	253	244	244	327	315
Commonwealth ..	8,813	8,251	8,380	8,379	10,399	10,408

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

AVERAGE NUMBER OF CHILDREN EMPLOYED IN FACTORIES, 1916 TO 1920-21—continued.

State.	1916.(a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920-21.(c)
FEMALES.						
New South Wales ..	2,605	2,449	2,492	2,561	3,764	3,610
Victoria ..	2,197	2,301	2,447	2,389	2,872	2,798
Queensland ..	745	704	711	711	645	738
South Australia ..	591	586	567	545	765	679
Western Australia ..	271	314	307	307	307	311
Tasmania ..	102	89	105	105	186	193
Commonwealth ..	6,511	6,443	6,629	6,618	8,539	8,329
TOTAL.						
New South Wales ..	5,183	5,053	5,076	5,147	7,588	7,283
Victoria ..	5,552	5,373	5,642	5,526	6,593	6,513
Queensland ..	1,942	1,874	1,882	1,882	1,859	2,004
South Australia ..	1,659	1,330	1,346	1,379	1,631	1,670
Western Australia ..	669	722	714	714	754	759
Tasmania ..	319	342	349	349	513	508
Commonwealth ..	15,324	14,694	15,009	14,997	18,938	18,737

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

3. Percentage of Children on Total Persons Employed.—The foregoing table shews a general increase in the number of children employed in factories during the past quinquennial period. This increase is more marked among the females than the males, the respective gains being 1,818 and 1,595. Examined in conjunction with the total number of persons employed it will be seen from the following table that the percentage of children employed in factories has remained stationary since 1916, subject to slight fluctuations during the period :—

PERCENTAGE OF CHILDREN IN FACTORIES ON TOTAL NUMBER OF EMPLOYEES, 1916 TO 1920-21.

State.	1916. (a)	1917.(b)	1918.(b)	1918-19.(c)	1919-20.(c)	1920-21.(c)
	%	%	%	%	%	%
New South Wales ..	4.45	4.28	4.21	4.03	5.25	5.02
Victoria ..	4.88	4.59	4.77	4.52	4.83	4.63
Queensland ..	4.86	4.63	4.59	4.59	4.55	4.64
South Australia ..	6.51	5.11	5.05	4.94	5.54	5.49
Western Australia ..	5.28	5.93	5.53	5.53	4.89	4.46
Tasmania ..	3.81	4.23	4.01	4.01	5.12	4.97
Commonwealth ..	4.84	4.57	4.58	4.40	5.03	4.85

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

4. Industries Employing Child Labour.—The employment of children is largely confined to a limited number of industries, the most important of which are specified in the table below, which shews the average number of children of each sex employed in the several industries indicated in each State during 1920-21.

NUMBER OF CHILDREN ENGAGED IN VARIOUS INDUSTRIES, 1920-21.

Class.	Industry.	N.S.W. 1920-21.		Victoria. 1920-21.		Q'land. 1920.		S. Aust. 1920-21.		W. Aust. 1920.		Tas. 1920.		C'wealth.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
III.	Bricks, tiles, pottery, and earthenware ..	146	..	65	10	31	..	15	..	5	..	8	..	270	10
IV.	Joinery, boxes, cases, etc.	80	3	154	5	38	1	28	..	14	..	14	1	328	10
"	Saw mills ..	98	3	29	..	76	5	7	..	15	1	28	..	248	9
V.	Engineering, ironworks, and foundries ..	406	21	485	3	72	..	101	..	73	..	32	..	1,169	24
"	Galvanised ironwork- ing and tinsmithing ..	139	17	138	21	61	..	60	..	..	..	7	..	405	38
"	Railway carriage, rail- way and tramway workshops ..	74	1	137	..	..	..	48	..	10	..	1	..	270	1
VI.	Meat & fish preserving ..	3	..	8	..	78	1	..	..	..	..	1	..	89	2
"	Biscuits ..	318	147	60	29	10	10	9	12	19	13	14	8	430	219
"	Confectionery ..	81	267	48	53	30	39	6	35	8	3	1	1	169	398
"	Jams, pickles, sauces, etc.	18	21	66	42	14	4	24	22	3	2	55	6	180	97
"	Tobacco, cigars, etc.	50	103	54	8	1	2	2	2	3	4	..	..	110	119
VII.	Woolen, cotton, and tweed mills ..	64	101	188	176	7	39	13	15	..	..	6	26	278	357
"	Boots and shoes ..	162	220	272	407	40	36	31	35	19	18	6	29	530	745
"	Clothing (tailoring and sewing) ..	92	687	62	259	46	252	10	143	17	81	5	35	232	1,457
"	Dressmaking and mil- linery ..	3	550	7	585	..	113	..	177	1	79	1	54	12	1,558
"	Hats and caps ..	32	117	41	35	..	8	5	5	..	..	..	..	78	165
"	Shirts, ties, scarfs, etc.	11	330	7	335	5	114	..	76	2	37	..	4	25	896
VIII.	Electrotyping, printing and binding ..	394	230	411	146	192	65	63	42	65	24	46	22	1,171	529
"	Paper making, paper boxes, etc. ..	72	130	29	48	4	14	16	52	..	8	..	..	121	252
XI.	Coach and wagon building ..	58	1	90	2	34	1	32	1	16	..	24	..	254	5
"	Cycles and motors ..	116	8	134	3	50	1	85	5	20	..	14	..	419	17
XIII.	Billiard tables, cabinet making and furniture ..	136	5	177	1	92	6	69	..	19	..	18	1	511	13
XIV.	Chemicals, drugs, and medicines ..	37	78	7	21	..	6	7	17	8	3	..	..	59	125

5. Apprenticeship.—In all the States Acts are in force for the regulation of the age at which children may be employed in gainful occupations. Legislative provision is also made for the regulation of apprenticeship under the various State Factories Acts or Arbitration Acts. These Acts, while laying down general principles, leave to the wages tribunals the actual determination of the conditions under which apprentices may be employed.

(i) *New South Wales.* In New South Wales the *Industrial Arbitration Act* gives power to the Industrial Boards and Arbitration Court to fix the number or proportional number of apprentices in any industry and the lowest prices or rates payable to them. Further, the Board of Trade is empowered to determine such matters as the occupation and industry in which apprenticeship shall be a condition of employment; the hours, wages, and conditions of employment of apprentices; and the limitation in number of apprentices. In addition, the Board may determine to what extent technical education shall be obligatory upon apprentices and masters; co-operate with the Department of Education in encouraging young persons to attend technical, trade, or continuation schools; and generally protect, control, and direct conditions of apprenticeship including the control of attendance at technical or trade schools. The Board of Trade has issued two comprehensive reports on the subject of apprenticeship, the first in 1920 and the second in 1922. The latter report contains the determinations and directions made by the Board with respect to apprenticeship in industries, but they can only be brought into effect when incorporated in regulations made by the Governor in Council. Such regulations had not been issued at the date when this Section was compiled.

(ii) *Victoria.* In Victoria the *Factories and Shops Act 1915* confers powers on the Wages Boards to prescribe the form of apprenticeship indenture and determine the number or proportionate number of apprentices who may be employed within any factory or shop or place in any trade. The Boards when determining these matters may take into consideration the age, sex, and experience of the apprentices, and fix a scale of prices

or rates payable to such apprentices according to their respective age, sex, and experience. The Boards are limited by the Act to the extent that they are prohibited from fixing a less number or proportionate number than one apprentice for every three or fraction of three workers in the particular trade receiving or earning the minimum wage. The Act also provides that the Minister may grant permission in writing to any person to be bound for a less period than three years; to enable persons 21 years of age and over either to be bound by indentures of apprenticeship, or if attaining the age of 21 during the term of apprenticeship to complete the term of such apprenticeship.

(iii) *Queensland.* In Queensland the question of apprenticeship is dealt with under the provisions of the *Industrial Arbitration Act 1916*. The Court of Industrial Arbitration is directed to fix the term of apprenticeship; the earliest and latest age at which apprenticeship shall begin; the treatment to be extended by masters to apprentices—including insurance against accident,—the matters to be taught; methods, times, and conditions of instruction, whether in factory, trade, or technical school, and also to decide whether such instruction shall be in the time and at the expense of the master and apprentice, master only, or apprentice only. The Court has power also to modify rules or conditions of apprenticeship and to decide disputes which may arise *re* payment, forfeiture, hours, registration, penalties, etc.

(iv) *South Australia.* The *Industrial Code Act of 1920* includes certain provisions as to apprenticeship. These are that no person may be indentured after attaining the age of 20 years, and that indentures are not to be binding upon an apprentice who attains the age of 21 years even if the term of apprenticeship is not completed. It is further provided under this Act that every indenture shall contain a covenant that the employer will instruct the person apprenticed in the particular craft, occupation, or calling specified.

(v) *Western Australia.* In Western Australia it is provided that the Industrial Court, under the provisions of the *Industrial Arbitration Act 1912*, shall determine the persons who may take or become apprentices; the number of apprentices any employer may have; the mode of binding apprentices; the term and conditions of apprenticeship; the registration and examination of apprentices; the rights, duties, and liabilities of the parties to any agreement of apprenticeship; the assigning or turning over of apprentices; and the dissolution of apprenticeship. In awards of the Court an Examination Board is constituted for each industry, and apprentices are bound to submit once a year to an examination by that Board. The Board consists of persons skilled in the trade, and nominated by the unions and the employers, or if they fail to nominate such persons the Court or the President may do so.

(vi) In Tasmania the *Wages Board Act of 1920* contains provisions with regard to the regulation of apprenticeship. The Wages Boards may prescribe the form of indenture; fix the number or proportionate number of apprentices—but not less than one apprentice for every one journeyman of the same sex. The Act also gives power to the Chief Inspector to transfer apprentices from an employer becoming insolvent or relinquishing business to another employer. Apprentices may be dismissed, and their indentures cancelled if the Chief Inspector makes a recommendation to that effect.

Other provisions of the Act give authority to the Minister administering the Act to grant permission to any student at the University who is under 21 years of age to work as an apprentice for a period not exceeding six months for the purpose of obtaining practical experience in some subject comprised in his course at the University. Other provisions of the Act have reference to action to be taken in cases where employers, through depression in trade or other causes, are forced to reduce the number of journeymen, and thus disturb the relation between the proportionate number of journeymen and apprentices, and it is laid down that when apprentices, owing to the employer, work less than the maximum number of hours per week, they shall be paid the rates determined for the maximum number of hours.

§ 8. Amount of Wages Paid and Value of Production.

1. **Introduction.**—The importance of the manufacturing industries of the Commonwealth is indicated by the fact that the total value of the output for 1920-21 was £324,586,519, of which amount the sum of £205,866,282 represents the value of the raw materials used. The difference between these two amounts, viz., £118,720,237, represents the amount by which the value of the raw materials was enhanced in the process of manufacture. The total amount of salaries and wages paid in factories during 1920-21 was £62,931,718.

2. **Amount of Salaries and Wages Paid.**—The total amount of salaries and wages paid during the year 1920-21 in various classes of factories in the Commonwealth (excluding all sums drawn by working proprietors) is shewn in the following table :—

AMOUNT OF SALARIES AND WAGES PAID IN FACTORIES IN COMMONWEALTH, 1920-21.(a)

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	735,738	732,432	125,724	156,281	(b)61,022	39,036	1,850,233
II. Treating oils and fats, animal, vegetable, etc. . .	265,740	142,673	29,792	44,428	(c)	4,659	487,292
III. Processes in stone, clay, glass, etc. . .	1,689,213	977,691	164,847	360,841	116,256	42,039	3,350,887
IV. Working in wood . .	1,589,929	1,673,041	878,656	285,933	823,188	308,770	5,559,517
V. Metal works, machinery, etc. . .	7,780,446	4,376,177	1,470,295	1,500,606	542,624	351,558	16,021,706
VI. Connected with food and drink, etc. . .	2,933,469	2,953,232	2,122,655	593,181	448,692	260,803	9,312,032
VII. Clothing and textile fabrics, etc. . .	3,257,942	4,718,656	663,993	505,102	245,610	131,367	9,522,730
VIII. Books, paper, printing, and engraving . .	1,869,610	1,644,405	511,818	311,870	212,890	123,291	4,673,884
IX. Musical instruments, etc. . .	137,791	64,857	..	5,138	..	..	207,786
X. Arms and explosives . .	209,954	102,558	..	377	..	..	312,889
XI. Vehicles and fittings, saddlery and harness, etc. . .	828,208	886,508	188,771	342,319	114,504	66,229	2,426,539
XII. Ship and boat building and repairing . .	1,288,293	199,892	17,523	90,295	2,951	9,365	1,608,324
XIII. Furniture, bedding, and upholstery . .	750,079	564,458	225,198	175,149	102,692	54,813	1,872,389
XIV. Drugs, chemicals, and by-products . .	483,744	436,825	12,621	158,005	74,134	1,990	1,167,319
XV. Surgical and other scientific instruments . .	33,875	25,931	8,908	5,888	4,790	..	79,392
XVI. Jewellery, time-pieces, and plated ware . .	155,164	199,749	23,253	32,735	11,447	4,474	426,822
XVII. Heat, light, & power . .	1,180,836	1,032,679	237,345	246,697	84,146	76,581	2,858,284
XVIII. Leatherware, n.e.l. .	126,722	133,547	14,303	6,515	2,050	901	283,838
XIX. Minor wares, n.e.l. .	301,838	512,105	23,198	44,791	23,571	4,352	909,855
Total . .	25,618,591	21,377,216	6,718,905	4,866,211	2,870,567	1,480,228	62,931,718

(a) Excluding all amounts drawn by working proprietors.

(b) Includes Class II.

(c) Included with Class I.

The maximum amount of salaries and wages paid in any particular class during 1920-21 was in Class V., the amount being £16,021,706, or 25.46 per cent. on the total amount; the minimum amount was in Class XV., £79,392, or 0.13 per cent.

on the total amount. The State in which the largest amount was paid was New South Wales. The following statement shows the total amount of salaries and wages paid, and the average amount paid per employee in each State, during each of the years 1916 to 1920-21. The figures are exclusive of working proprietors and of the amounts drawn from the business by them.

AMOUNT OF SALARIES AND WAGES PAID AND AVERAGE AMOUNT PER ANNUM PAID PER EMPLOYEE, 1916 TO 1920-21.

Year.	Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
		£	£	£	£	£	£	£
1916a ..	Total amount paid ..	13,413,845	11,036,345	4,131,254	2,705,130	1,656,799	835,467	33,828,840
	Average per employee ..	119.29	101.75	108.13	111.54	136.29	104.88	111.35
1917b ..	Total amount paid ..	14,381,309	11,833,517	4,879,940	3,094,094	1,590,696	838,662	36,618,218
	Average per employee ..	128.16	105.87	125.28	124.57	136.22	108.97	118.54
1918b ..	Total amount paid ..	14,701,255	12,502,601	5,121,188	3,359,354	1,730,896	963,974	38,379,268
	Average per employee ..	126.18	110.77	129.45	131.94	138.55	115.57	121.75
1918-19c	Total amount paid ..	16,957,919	14,080,403	5,121,188	3,651,715	1,730,896	963,974	42,506,095
	Average per employee ..	137.33	120.47	129.45	136.64	138.55	115.57	129.80
1919-20c	Total amount paid ..	21,681,196	17,702,173	5,364,818	3,988,062	2,173,350	1,205,959	52,115,558
	Average per employee ..	154.87	135.52	135.86	141.63	145.24	126.03	143.65
1920-21c	Total amount paid ..	25,618,591	21,377,216	6,718,900	4,866,211	2,870,567	1,480,228	62,931,718
	Average per employee ..	182.39	159.41	161.12	166.96	173.60	150.86	169.28

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

In comparing the figures in the preceding table, regard should be paid to the nature of certain industries which are carried on to a greater extent in some States than in others. In Victoria, for instance, there is a large number of hands employed in Class VII., comprising a heavy percentage of women and children. New South Wales pays the largest amount in salaries, and the average per employee in that State is considerably higher than in any other part of the Commonwealth.

It will be noted that there has been a continual increase in the average wage paid per employee in each of the States during the period under review. Taking the Commonwealth as a whole, during the period 1916 to 1920-21 there has been an increase of 86 per cent. on the total amount of wages paid, and 52 per cent. on the average paid per employee.

The following table shows the approximate amount paid in salaries and wages to males and females in each class of industry in each State during 1920-21, and the total amounts paid to employees of each sex during the last six years:—

AMOUNT(a) OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS EMPLOYED IN EACH CLASS OF INDUSTRY IN THE SEVERAL STATES OF THE COMMONWEALTH DURING 1920-21.

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
MALES.							
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	719,990	729,705	124,371	155,363	60,577b	38,971	1,828,977
II. Treating oils and fats, animal, vegetable, etc.	237,015	130,382	28,613	42,001	(c)	4,224	442,235
III. Processes in stone, clay, glass, etc. ..	1,678,969	965,398	163,639	359,811	115,118	41,669	3,324,604
IV. Working in wood ..	1,573,891	1,657,099	872,452	282,789	822,175	307,578	5,515,984
V. Metal works, machinery, etc.	7,717,848	4,332,134	1,461,823	1,491,331	539,623	349,656	15,892,415

(a) Exclusive of amount drawn by working proprietors. (b) Includes Class II. (c) Included in Class I.

**AMOUNT(a) OF SALARIES AND WAGES PAID TO MALE AND FEMALE HANDS
EMPLOYED IN EACH CLASS OF INDUSTRY, ETC.—continued.**

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
MALES—continued.							
VI. Connected with food and drink, etc. . .	£ 2,473,053	£ 2,555,798	£ 2,049,711	£ 552,373	£ 422,764	£ 243,573	£ 8,207,272
VII. Clothing and textile fabrics, etc. . .	1,512,436	2,078,352	299,196	203,498	91,815	64,320	4,249,617
VIII. Books, paper, printing and engraving . .	1,609,438	1,384,579	450,777	268,036	190,016	114,218	4,017,064
IX. Musical instruments, etc. . .	132,504	63,177	..	4,998	..	..	200,679
X. Arms and explosives	209,419	77,553	..	377	..	..	287,349
XI. Vehicles and fittings, saddlery and harness, etc. . .	810,226	867,633	181,074	334,387	111,495	63,327	2,368,142
XII. Ship and boat building and repairing . .	1,283,680	199,313	17,528	90,295	2,951	9,365	1,603,132
XIII. Furniture, bedding, and upholstery . .	698,722	532,914	216,030	171,210	99,483	53,356	1,771,715
XIV. Drugs, chemicals, and by-products . .	403,307	381,313	8,556	151,547	70,207	1,840	1,016,770
XV. Surgical and other scientific instruments	30,477	24,269	8,738	5,707	4,314	..	73,505
XVI. Jewellery, timepieces, and plated ware . .	146,009	185,828	22,152	31,337	11,049	4,474	400,849
XVII. Heat, light, and power	1,175,060	967,646	233,194	239,722	84,047	75,571	2,775,240
XVIII. Leatherware, n.e.l. . .	102,211	100,221	11,277	4,198	1,813	691	220,411
XIX. Minor wares, n.e.l. . .	251,961	435,603	19,613	41,289	20,510	3,989	772,965
Total . .	22,766,216	17,668,917	6,168,744	4,430,269	2,647,957	1,376,822	55,058,925

FEMALES.

I. Treating raw material product of agricultural and pastoral pursuits, etc. . .	15,748	2,727	1,353	918	445b	65	21,256
II. Treating oils and fats, animal, vegetable, etc. . .	28,725	12,291	1,179	2,427	(c)	435	45,057
III. Processes in stone, clay, glass, etc. . .	10,244	12,293	1,208	1,030	1,138	370	26,283
IV. Working in wood . .	16,038	15,942	6,204	3,144	1,013	1,192	43,533
V. Metal works, machinery, etc. . .	62,598	44,043	8,472	9,275	3,001	1,902	129,291
VI. Connected with food and drink, etc. . .	460,416	397,434	72,944	40,808	25,928	17,230	1,014,760
VII. Clothing and textile fabrics, etc. . .	1,745,506	2,640,304	364,797	301,664	153,795	67,047	5,273,113
VIII. Books, paper, printing and engraving . .	260,172	259,826	61,041	43,834	22,874	9,073	656,820
IX. Musical instruments, etc. . .	5,287	1,680	..	140	..	..	7,107
X. Arms and explosives	535	25,005	..	..	..	..	25,540
XI. Vehicles and fittings, saddlery and harness, etc. . .	17,982	18,875	7,697	7,932	3,009	2,902	58,397
XII. Ship and boat building and repairing . .	4,613	579	..	..	..	..	5,192
XIII. Furniture, bedding, and upholstery . .	51,357	31,544	9,168	3,939	3,209	1,457	100,674
XIV. Drugs, chemicals, and by-products . .	80,437	55,512	4,065	6,458	3,927	150	150,549
XV. Surgical and other scientific instruments	3,398	1,662	170	181	476	..	5,887
XVI. Jewellery, timepieces, and plated ware . .	9,155	13,921	1,101	1,398	398	..	25,973
XVII. Heat, light, and power	5,776	65,033	4,151	6,975	99	1,010	83,044
XVIII. Leatherware, n.e.l. . .	24,511	33,126	3,026	2,317	237	210	63,427
XIX. Minor wares, n.e.l. . .	49,877	76,502	3,585	3,502	3,061	363	136,890
Total . .	2,852,375	3,708,299	550,161	435,942	222,610	103,406	7,872,793

(a) Exclusive of amount drawn by working proprietors. (b) Includes Class II. (c) Included in Class I.

AMOUNT(a) OF SALARIES AND WAGES PAID TO MALES AND FEMALES IN FACTORIES IN THE SEVERAL STATES OF THE COMMONWEALTH, 1916 TO 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
MALES.							
1916.b Amount paid ..£	11,888,028	9,161,852	3,823,488	2,506,579	1,520,760	772,789	29,673,496
Per cent. on total ..	88.63	83.02	91.44	92.66	91.79	+92.50	87.72
Average per employee£	141.46	128.76	123.57	122.92	155.80	116.10	133.66
1917.c Amount paid ..£	12,727,172	9,590,851	4,496,449	2,852,334	1,449,780	778,352	31,894,939
Per cent. on total ..	88.50	81.05	92.14	92.19	91.14	92.81	87.10
Average per employee£	149.35	136.48	143.51	144.99	156.99	120.13	143.53
1918.c Amount paid ..£	12,848,017	10,141,750	4,710,717	3,087,063	1,578,600	892,743	33,258,890
Per cent. on total ..	87.39	81.12	91.98	91.89	91.20	92.61	86.66
Average per employee£	148.93	141.12	146.19	152.89	156.41	127.75	146.11
1918-19.d Amount paid ..£	14,966,689	11,581,666	4,710,717	3,344,623	1,578,600	892,743	37,025,018
Per cent. on total ..	88.26	81.90	91.98	91.59	91.20	92.61	87.11
Average per employee£	160.82	150.89	146.19	157.55	156.41	127.75	164.25
1919-20.d Amount paid ..£	19,128,348	14,483,166	4,909,725	3,605,180	2,000,474	1,116,679	45,243,572
Per cent. on total ..	88.23	81.82	91.52	90.40	92.05	92.60	86.81
Average per employee£	181.06	166.98	151.09	162.43	161.84	138.51	169.14
1920-21.d Amount paid ..£	22,766,216	17,668,917	6,168,744	4,430,269	2,647,957	1,376,822	55,058,925
Per cent. on total ..	88.87	82.65	91.81	91.04	92.25	93.01	87.49
Average per employee£	210.99	195.63	178.49	190.05	191.16	165.07	197.85
FEMALES.							
1916.b Amount paid ..£	1,525,817	1,874,493	357,766	198,551	136,039	62,678	4,155,344
Per cent. on total ..	11.37	16.98	8.56	7.34	8.21	7.50	12.28
Average per employee£	53.72	50.24	46.29	42.47	56.80	47.85	50.81
1917.c Amount paid ..£	1,654,137	2,242,666	383,491	241,760	140,916	60,309	4,723,279
Per cent. on total ..	11.50	18.95	7.86	7.81	8.88	7.19	12.90
Average per employee£	57.49	54.05	50.31	46.81	57.71	49.58	54.47
1918.c Amount paid ..£	1,853,238	2,360,851	410,471	272,291	152,296	71,231	5,120,378
Per cent. on total ..	12.61	18.88	8.02	8.11	8.80	7.39	13.94
Average per employee£	61.27	57.57	55.95	51.67	63.46	52.65	58.45
1919-20.d Amount paid ..£	1,991,250	2,543,737	410,471	307,092	152,296	71,231	5,481,077
Per cent. on total ..	11.74	18.10	8.02	8.41	8.80	7.39	12.89
Average per employee£	65.46	63.00	55.95	55.88	63.46	52.65	62.67
1919-20.d Amount paid ..£	2,552,848	3,219,007	455,093	382,882	172,376	89,280	6,871,986
Per cent. on total ..	11.77	18.18	8.43	9.60	7.95	7.40	13.19
Average per employee£	74.33	73.35	65.07	64.20	66.41	59.24	72.11
1920-21.d Amount paid ..£	2,852,375	3,708,299	550,161	435,942	222,610	103,416	7,872,793
Per cent. on total ..	11.13	17.35	8.19	8.96	7.75	6.99	12.51
Average per employee£	87.61	84.71	77.04	74.71	82.94	70.00	84.23

(a) Exclusive of amounts drawn by working proprietors.

(b) See note (a) first table this section.

(c) See note (b) first table this section.

(d) See note (c) first table this section.

A further analysis of salaries and wages paid is given in the following tables, the amounts paid to managers, overseers, etc., being differentiated from those paid to other employees. As previously mentioned, amounts drawn by working proprietors are excluded in all cases.

DETAILS OF SALARIES AND WAGES PAID TO MANAGERS, OVERSEERS, ETC., AND OTHER EMPLOYEES IN FACTORIES DURING 1920-21.(a)

Class of Industry.	Salaries and Wages Paid to—						
	Managers, Overseers, Accountants, and Clerks.		All Other Employees.		All Employees.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	£	£	£	£	£	£	£
II. Treating oils and fats, animal, vegetable, etc. ..	238,050	8,261	1,590,927	12,995	1,828,977	21,256	1,850,233
III. Processes in stone, clay, glass, etc. ..	82,870	9,166	359,365	35,891	442,235	45,057	487,292
IV. Working in wood ..	320,966	13,806	3,003,638	12,477	3,324,604	26,283	3,350,887
V. Metal works, machinery, etc. ..	604,386	32,234	4,911,598	11,299	5,515,984	43,533	5,559,517
VI. Connected with food and drink, etc. ..	1,559,959	72,846	14,332,456	56,445	15,892,415	129,291	16,021,706
VII. Clothing and textile fabrics, etc. ..	1,585,405	129,821	6,761,867	884,939	8,297,272	1,014,760	9,312,032
VIII. Books, paper, printing, and engraving ..	686,718	276,035	3,562,899	4,997,078	4,249,617	5,273,113	9,522,730
IX. Musical Instruments, etc. ..	781,097	112,521	3,235,967	544,299	4,017,064	656,820	4,673,884
X. Arms and explosives ..	23,725	3,751	176,954	3,356	200,679	7,107	207,786
	35,155	3,752	252,194	21,788	287,349	25,540	312,889

(a) See note (c) first table this section.

DETAILS OF SALARIES AND WAGES PAID TO MANAGERS, OVERSEERS, ETC.,
AND OTHER EMPLOYEES IN FACTORIES DURING 1920-21(a)—continued.

Salaries and Wages Paid to—

Class of Industry.	Managers, Overseers, Accountants and Clerks.		All Other Employees.		All Employees.		
	Males.	Females.	Males.	Females.	Males.	Females.	Total.
	£	£	£	£	£	£	£
XI. Vehicles and fittings, saddlery and harness, etc. . .	256,872	40,372	2,111,270	18,025	2,368,142	58,397	2,426,539
XII. Ship and boat building and repairing . .	131,101	4,417	1,472,031	775	1,603,132	5,192	1,608,324
XIII. Furniture, bedding, and upholstery . .	138,760	17,742	1,632,955	82,932	1,771,715	100,674	1,872,389
XIV. Drugs, chemicals, and by-products . .	220,965	29,403	795,803	121,146	1,016,770	150,549	1,167,319
XV. Surgical & other scientific instruments . .	12,742	1,880	60,763	4,007	73,503	5,887	79,392
XVI. Jewellery, timepieces, and plated ware . .	33,815	8,765	367,034	17,203	400,849	25,973	426,822
XVII. Heat, light, and power . .	567,146	33,591	2,203,004	49,453	2,773,240	83,044	2,856,284
XVIII. Leatherware, n.e.l. . .	41,121	6,970	179,200	56,457	220,411	63,427	283,838
XIX. Minor wares, n.e.l. . .	100,026	12,262	672,939	124,628	772,965	136,890	909,855
Total	7,370,379	817,595	47,688,046	7,055,198	55,038,923	7,872,793	62,931,718
Average paid per employee . .	297.39	119.43	184.12	81.45	197.85	84.23	169.28

(a) See note (c) first table this section.

3. Value of Fuel and Light used in Factories.—The amount expended in factories on fuel and light is of considerable importance; in 1920-21 it amounted to £7,692,488. The classes of industry in which fuel was most extensively used were Class V., Metal Works, Machinery, etc., £2,368,992; Class VI., Connected with Food, Drink, etc., £1,460,566; Class XVII., Heat, Light, Power, etc., £1,454,350, of which amount £1,270,223 was expended on generating electric light and power; and Class III., £1,039,187. The following tables shew the value of fuel and light used in the different classes of industry in the several States of the Commonwealth during 1920-21, and of the total used for each of the last five years:—

VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH,
1920-21.

Class of Industry.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material product of agricultural and pastoral pursuits, etc. . .	93,132	89,507	17,530	21,490	9,771 ^a	2,240	233,670
II. Treating oils and fats, animal, vegetable, etc. .	66,836	45,561	5,651	5,681	(b)	594	124,323
III. Processes in stone, clay, glass, etc. . .	511,890	319,754	27,622	129,656	37,137	13,128	1,039,187
IV. Working in wood . .	48,069	37,446	13,852	8,487	4,500	3,366	115,720
V. Metal works, machinery, etc. . .	1,455,921	337,194	287,756	169,860	29,359	88,902	2,368,992
VI. Connected with food and drink, etc. . .	436,582	519,098	279,823	128,689	69,937	26,437	1,460,566
VII. Clothing and textile fabrics, etc. . .	79,328	174,185	14,275	15,146	4,744	3,177	290,855
VIII. Books, paper, printing, engraving . .	75,840	86,118	29,337	10,789	6,829	2,616	211,529
IX. Musical instruments, etc. .	2,221	1,336	..	123	..	..	3,680
X. Arms and explosives. .	2,720	9,127	..	13	..	..	11,860
XI. Vehicles and fittings, saddlery and harness, etc. . .	22,864	26,643	4,209	12,304	4,950	1,724	72,604
XII. Ship and boat building and repairing . .	28,855	8,667	267	7,685	25	168	45,667
XIII. Furniture, bedding, and upholstery . .	14,992	15,929	6,146	4,432	2,669	935	45,103
XIV. Drugs, chemicals, and by-products . .	31,398	50,340	712	26,644	5,797	137	115,028
XV. Surgical and other scientific instruments . .	693	760	286	257	145	..	2,141
XVI. Jewellery, timepieces, and plated ware . .	3,570	5,883	710	1,606	259	49	12,077
XVII. Heat, light, and power . .	717,719	390,227	77,764	160,685	96,250	11,705	1,454,350
XVIII. Leatherware, n.e.l. . .	1,281	3,302	201	147	72	3	5,006
XIX. Minor wares, n.e.l. . .	14,833	63,019	449	1,081	617	41	80,040
Total	3,608,744	2,840,096	766,590	704,775	273,061	155,222	7,692,488

(a) Includes Class II.

(b) Included in Class I.

**VALUE OF FUEL AND LIGHT USED IN FACTORIES IN COMMONWEALTH
DURING THE YEARS 1916 TO 1920-21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£
1916a ..	1,528,220	834,966	310,454	399,731	193,523	116,704	3,383,598
1917b ..	1,766,664	1,024,156	415,052	558,524	198,000	92,544	4,054,940
1918b ..	2,000,076	1,248,186	424,099	683,187	211,950	105,392	4,732,800
1918-19c ..	2,298,041	1,457,124	424,099	644,687	211,950	105,392	5,141,293
1919-20c ..	2,710,666	1,723,220	531,612	558,802	222,334	112,555	5,859,189
1920-21c ..	3,608,744	2,184,096	766,590	704,775	273,061	155,222	7,692,488

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

4. Value of Raw Materials used in Factories.—The total value of raw materials worked up (i.e., exclusive of fuel, lubricants, etc.) in factories in the Commonwealth during 1920-21 was £205,866,282, which represents 63.42 per cent. of the total value of the finished products. (See next paragraph.) The following table shows the value of the raw materials worked up in various classes of industry in each State :—

**VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH,
1920-21.**

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	5,741,605	4,117,710	2,529,710	938,761	836,758	446,571	14,611,115
II. Treating oils and fats, animal, vegetable, etc. ..	2,545,635	1,017,962	203,297	263,716	(b)	23,085	4,053,695
III. Processes in stone, clay, glass, etc. ..	1,309,305	495,527	123,142	293,287	43,122	18,945	2,283,328
IV. Working in wood ..	4,148,158	2,394,495	1,629,947	1,362,329	200,759	140,806	9,876,494
V. Metal works, machinery, etc. ..	20,562,008	6,648,749	1,873,921	1,609,786	523,375	1,262,847	32,480,686
VI. Connected with food and drink, etc. ..	36,552,051	27,064,634	14,669,509	6,187,592	3,306,337	1,797,947	89,578,070
VII. Clothing and textile fabrics, etc. ..	8,142,022	12,664,750	1,647,421	1,110,499	648,095	240,785	24,453,572
VIII. Books, paper, printing, and engraving ..	3,332,925	3,016,373	530,837	628,825	287,143	180,746	7,904,849
IX. Musical instruments, etc. ..	150,425	58,928	..	5,655	..	..	215,008
X. Arms and explosives ..	33,103	293,788	..	980	..	..	327,876
XI. Vehicles and fittings, saddlery and harness, etc. ..	978,818	1,043,080	249,241	533,233	153,235	66,519	3,024,126
XII. Ship and boat building and repairing ..	740,118	153,438	20,464	177,018	3,737	7,200	1,101,975
XIII. Furniture, bedding, and upholstery ..	1,312,759	1,048,103	328,072	229,466	148,258	53,049	3,119,707
XIV. Drugs, chemicals, and by-products ..	2,386,232	1,923,582	28,761	733,715	398,222	18,330	5,488,842
XV. Surgical and other scientific instruments ..	36,392	23,527	6,566	7,406	8,184	..	82,075
XVI. Jewellery, timepieces, and platedware ..	145,715	309,087	23,883	33,695	19,196	1,493	533,069
XVII. Heat, light, and power ..	1,823,662	1,070,130	136,575	170,062	54,962	42,415	3,297,806
XVIII. Leatherware, n.e.f. ..	415,981	482,265	38,012	20,871	4,867	2,462	964,458
XIX. Minor wares, n.e.f. ..	747,586	1,575,297	33,842	68,534	41,164	3,108	2,469,531
Total ..	91,104,505	65,401,425	24,073,200	14,375,430	6,677,414	4,234,308	205,866,282

(a) Includes Class II.

(b) Included in Class I.

The class in which the maximum value of raw materials was used was Class VI., "Connected with Food and Drink, etc.," the value being £89,578,070. The next important class in order of value was Class V., "Metal Works, Machinery, etc.," in which raw materials to the value of £32,480,686 were used. The class in which the minimum value appears is Class XV., "Surgical and other Scientific Instruments," the value being only £82,075. The following table gives particulars for the six years ended 1920-21 :—

VALUE OF RAW MATERIALS WORKED UP IN FACTORIES IN COMMONWEALTH DURING THE YEARS 1916 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1916a ..	44,227,070	30,728,743	16,127,926	8,720,436	3,033,638	2,342,623	105,180,445
1917b ..	57,044,667	37,103,750	20,938,266	11,331,814	3,323,424	2,541,175	132,283,096
1918c ..	64,718,726	42,133,636	19,693,043	12,442,803	3,963,470	3,230,188	146,181,866
1918-19c ..	69,737,452	52,098,737	19,693,043	13,759,882	3,963,470	3,230,188	162,482,772
1919-20c ..	81,168,497	65,563,104	19,376,068	12,970,957	5,051,114	2,563,137	187,722,877
1920-21c ..	91,104,505	65,401,423	24,073,200	14,375,430	6,677,414	4,234,308	205,866,282

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

5. **Total Value of Output of Manufacturing Industries.**—The value of the output of new goods manufactured and of repairs effected in factories of various classes in each State during 1920-21 is shewn in the following table. The figures given represent not only the increase in value due to the process of manufacture, but also include the value of the raw materials used. The difference between the value of the materials used and the total output (see paragraph 6 hereof) is the real value of production from manufactories :—

TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH, 1920-21.

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	7,254,180	5,586,657	2,950,057	1,236,130	1,016,071	528,275	18,571,370
II. Treating oils and fats, animal, vegetable, etc. ..	3,384,496	1,432,360	306,791	335,581	(b)	29,160	5,488,388
III. Processes in stone, clay, glass, etc. ..	4,677,903	2,454,069	463,017	990,731	239,473	96,761	8,921,954
IV. Working in wood ..	6,604,229	5,128,861	3,178,242	1,795,289	1,275,724	641,911	18,624,256
V. Metal works, machinery, etc. ..	32,643,806	13,421,904	4,587,944	3,411,889	1,203,367	1,959,042	57,227,952
VI. Connected with food and drink, etc. ..	43,902,378	34,604,156	21,414,951	7,476,361	4,347,247	2,470,055	114,215,148
VII. Clothing and textile fabrics, etc. ..	13,887,355	21,512,682	2,861,825	1,887,986	1,020,520	504,130	41,674,498
VIII. Books, paper, printing, and engraving ..	6,442,634	6,238,254	1,549,198	1,179,224	716,536	311,294	16,437,140
IX. Musical instruments, etc. ..	387,101	155,070	..	12,897	..	..	555,068
X. Arms and explosives ..	301,450	450,729	..	..	..	..	753,768
XI. Vehicles and fittings, saddlery and harness, etc. ..	2,191,179	2,387,577	598,137	1,062,995	315,238	160,501	6,715,627
XII. Ship and boat building and repairing ..	2,228,863	435,530	42,291	294,674	9,797	18,912	3,030,067
XIII. Furniture, bedding, and upholstery ..	2,371,138	1,929,098	674,516	499,789	287,906	144,363	5,906,810
XIV. Drugs, chemicals, and by-products ..	3,688,829	2,849,369	67,359	1,046,131	531,708	23,500	8,206,896
XV. Surgical and other scientific instruments ..	85,455	67,556	19,675	25,321	15,771	..	214,278
XVI. Jewellery, timepieces, and plated ware ..	369,074	662,021	62,241	84,300	34,595	8,429	1,220,660
XVII. Heat, light, and power ..	5,533,194	3,511,261	878,061	856,328	343,553	242,635	11,365,032
XVIII. Leatherware, n.e.i. ..	618,794	743,572	64,211	31,049	8,575	3,662	1,469,863
XIX. Minor wares, n.e.i. ..	1,269,328	2,437,568	65,162	129,345	76,999	9,342	3,987,744
Total ..	137,841,386	106,008,294	39,783,678	22,358,109	11,443,080	7,151,972	324,586,519

(a) Includes Class II.

(b) Included in Class I.

It will be seen that the State of New South Wales far outstrips the other States in the total value of the output of her factories, the value being £137,841,386, or 42.47 per cent. on the total for the Commonwealth. The next State in order of value is Victoria, which produced 32.66 per cent.; the value of the output of Queensland was 12.26 per cent.; of South Australia 6.89 per cent.; of Western Australia 3.52 per cent.; and of Tasmania 2.20 per cent. The two most important classes in order of value of output (Classes VI. and V.) are the same as in order of value of raw materials used. The following statement shews the value of output of factories, value per employee, and value per head of mean population in each State during the six years ended 1920-21 :—

**TOTAL VALUE OF OUTPUT OF FACTORIES IN COMMONWEALTH
DURING THE YEARS 1916 TO 1920-21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1916a ..	70,989,864	51,466,093	25,541,024	13,994,223	6,007,111	4,576,530	172,574,845
1917b ..	85,944,320	60,047,284	31,969,302	17,392,352	£ 255,388	4,768,000	206,376,646
1918b ..	96,178,191	67,066,715	30,559,839	19,261,142	7,003,505	5,684,219	225,753,611
1918-19c ..	104,803,018	80,195,677	30,559,839	20,810,630	7,003,505	5,684,219	249,056,888
1919-20c ..	123,213,480	101,475,363	32,452,744	20,454,539	8,723,928	6,216,554	292,536,608
1920-21c ..	137,841,386	103,003,294	39,783,678	22,358,109	11,443,080	7,151,972	324,586,519

PER EMPLOYEE.(d)

	£	£	£	£	£	£	£
1916a ..	610	452	639	549	474	547	545
1917b ..	728	513	790	669	514	590	642
1918b ..	798	567	746	723	542	652	688
1918-19c ..	821	655	746	745	542	652	731
1919-20c ..	853	743	794	695	566	621	777
1920-21c ..	951	753	921	735	672	699	840

PER HEAD OF MEAN POPULATION.

1916a ..	37.50	35.95	37.26	31.34	19.20	23.55	34.71
1917b ..	45.60	42.74	46.80	39.35	20.44	24.55	41.93
1918b ..	50.10	47.32	43.72	43.11	22.75	28.67	45.19
1918-19c ..	53.43	55.79	43.72	45.47	22.75	28.67	49.13
1919-20c ..	60.45	67.50	44.78	42.47	27.30	30.32	55.41
1920-21c ..	65.92	69.37	58.22	45.52	34.72	33.99	60.06

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

(d) Including working proprietors.

6. Value of Production of Manufacturing Industries.—The difference between the figures given in paragraph 5 and the corresponding figures in paragraph 4 represents the amount added to the value of the raw materials by the process of manufacture. This is the real measure of the value of production of manufacturing industries. The following table shews the value added in this manner during 1920-21 in each State for the various classes of factories :—

**VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH,
1920-21.**

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	£ 1,512,575	£ 1,468,947	£ 420,347	£ 297,369	£ 179,313	£ 81,704	£ 3,960,255
II. Treating oils and fats, animal, vegetable, etc. ..	888,861	414,398	103,494	71,865	(b)	6,075	1,434,693
III. Processes in stone, clay, glass, etc. ..	3,268,598	1,958,542	339,875	697,444	196,351	77,816	6,638,826
IV. Working in wood ..	2,456,071	2,734,366	1,548,295	432,960	1,074,965	501,105	8,747,762
V. Metal works, machinery, etc. ..	12,081,798	6,773,155	2,714,023	1,802,103	679,992	696,195	24,747,266
VI. Connected with food and drink, etc. ..	7,350,327	7,539,522	6,745,442	1,288,769	1,040,910	672,108	24,637,078
VII. Clothing and textile fabrics, etc. ..	5,745,333	8,847,932	1,214,404	777,487	372,425	263,345	17,220,926
VIII. Books, paper, printing, and engraving ..	3,109,709	3,221,881	1,018,361	550,399	429,393	202,548	8,532,291
IX. Musical instruments, etc. ..	236,676	96,142	..	7,242	..	..	340,060
X. Arms and explosives ..	268,342	156,941	..	609	..	..	425,892
XI. Vehicles and fittings, saddlery and harness, etc. ..	1,212,361	1,344,497	348,806	529,762	162,003	93,982	3,691,501
XII. Ship and boat building and repairing ..	1,488,745	282,092	21,827	117,656	6,060	11,712	1,928,092
XIII. Furniture, bedding, and upholstery ..	1,058,379	880,995	346,444	270,323	139,648	91,314	2,787,108
XIV. Drugs, chemicals, and by-products ..	1,302,597	925,787	38,598	312,416	133,486	5,170	2,718,054
XV. Surgical & other scientific instruments ..	49,063	44,020	13,109	18,415	7,587	..	132,203
XVI. Jewellery, timepieces, and plated ware ..	223,359	352,934	38,358	50,605	15,399	6,936	687,591
XVII. Heat, light, and power ..	3,709,532	2,441,131	741,486	686,266	283,591	200,220	8,067,226
XVIII. Leatherware, n.e.i. ..	201,813	261,307	26,199	10,178	3,708	1,200	506,405
XIX. Minor wares, n.e.i. ..	521,742	862,271	31,320	60,811	35,835	6,234	1,518,218
Total ..	46,736,881	40,606,869	15,710,478	7,982,679	4,765,666	2,917,664	118,720,237

(a) Includes Class II.

(b) Included in Class I.

The amount of the value added in each State is in the same order as in the case of value of output, the six most important classes being V., VI., VII., IV., VIII., and XVII., in the order named. The value added to raw material by process of manufacture and amount per employee and per head of mean population are shewn in the following statement for the years 1916 to 1920-21 :—

**VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN COMMONWEALTH,
1916 TO 1920-21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
VALUE.							
	£	£	£	£	£	£	£
1916a ..	26,762,785	20,737,350	9,413,098	5,273,787	2,973,473	2,233,907	67,394,400
1917b ..	28,899,653	22,943,534	11,031,036	6,060,538	2,931,964	2,226,325	74,063,550
1918b ..	31,559,930	21,833,079	10,866,796	6,813,339	3,046,035	2,454,031	79,672,210
1918-19c ..	35,065,566	28,696,940	10,866,796	7,050,748	3,040,035	2,454,031	86,574,116
1919-20c ..	42,024,983	35,912,259	13,066,970	7,483,582	3,672,814	2,653,417	104,813,731
1920-21c ..	46,736,881	40,606,869	15,710,478	7,982,679	4,765,666	2,917,664	118,720,237

(a) See note (a) first table this section. (b) See note (b) first table this section.

(c) See note (c) first table this section.

VALUE OF PRODUCTION OF MANUFACTURING INDUSTRIES IN
COMMONWEALTH, 1916 TO 1920-21—continued.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
PER EMPLOYEE.							

	£	£	£	£	£	£	£
1916a ..	230	182	235	207	235	267	213
1917b ..	245	196	273	233	241	276	230
1918b ..	262	211	265	256	235	282	243
1918-19c ..	275	230	265	253	235	282	254
1919-20c ..	291	263	320	254	238	265	278
1920-21c ..	322	289	364	262	280	285	307

PER HEAD OF MEAN POPULATION.

	£	£	£	£	£	£	£
1916a ..	14.14	14.48	13.73	11.81	9.51	11.50	13.56
1917b ..	15.33	16.33	16.15	13.71	9.58	11.46	15.03
1918b ..	16.44	17.59	15.55	15.26	9.88	12.38	15.85
1918-19c ..	17.68	19.55	15.55	15.41	9.88	12.38	17.08
1919-20c ..	20.62	23.89	18.03	15.54	11.49	12.94	19.85
1920-21c ..	22.35	26.57	21.02	16.25	14.46	13.86	21.97

(a) See note (a) first table this section. (b) See note (b) first table this section.
(c) See note (c) first table this section.

As the total value of the output for the Commonwealth for 1920-21 was estimated at £324,586,519, there remained, after payment of £205,866,282, the value of the raw materials used, of £62,931,718 for salaries and wages, and of £7,692,488 for fuel, the sum of £48,096,031 to provide for all other expenditure and profits. The following table gives corresponding particulars for each State, expressed absolutely, and as percentages on the total value of the output for the year 1920-21:—

VALUE OF OUTPUT AND COST OF PRODUCTION IN COMMONWEALTH
FACTORIES, 1920-21.

State.	Raw Materials Used.	Fuel and Light.	Salaries and Wages.	All other Expenditure, Interest, and Profits.	Total Value of Output.
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VALUE AND COST, ETC.

	£	£	£	£	£
New South Wales, 1920-21	91,104,505	3,608,744	25,618,591	17,509,546	137,841,386
Victoria, 1920-21 ..	65,401,425	2,184,096	21,377,216	17,045,557	106,008,294
Queensland, 1920 ..	24,073,200	766,590	6,718,905	8,224,983	39,783,678
South Australia, 1920-21 ..	14,375,430	704,775	4,866,211	2,411,693	22,358,109
Western Australia, 1920 ..	6,677,414	273,061	2,870,567	1,622,038	11,443,080
Tasmania, 1920 ..	4,234,308	155,222	1,480,228	1,282,214	7,151,972
Commonwealth ..	205,866,282	7,692,488	62,931,718	48,096,031	324,586,519

PERCENTAGE OF COSTS, ETC., ON TOTAL VALUE.

	%	%	%	%	%
New South Wales, 1920-21	66.09	2.62	18.59	12.70	100.00
Victoria, 1920 21 ..	61.69	2.06	20.17	16.08	100.00
Queensland, 1920 ..	60.51	1.93	16.89	20.67	100.00
South Australia, 1920-21 ..	64.30	3.15	21.76	10.79	100.00
Western Australia, 1920 ..	58.35	2.39	25.09	14.17	100.00
Tasmania, 1920 ..	59.20	2.17	20.70	17.93	100.00
Commonwealth ..	63.42	2.37	19.39	14.82	100.00

§ 9. Land, Buildings, Plant and Machinery.

1. **General.**—As an indication of the permanent character and stability of the industries which have been established in the Commonwealth, it may be noted that the values of land and buildings and of plant and machinery used in the factories are rapidly increasing. Thus, for the whole Commonwealth the total value of land and buildings and plant and machinery has increased from 1916 to 1920–21 by £44,567,237, i.e., from £84,919,501 to £129,486,738, or at the rate of £8,913,447 per annum.

The following statement shews the values of land and buildings and of plant and machinery used in connexion with manufacturing industries in each State during the year 1920–21 :—

VALUE OF LAND, BUILDINGS, PLANT AND MACHINERY IN CONNEXION WITH MANUFACTURING INDUSTRIES, 1920–21.

Value of—	N.S.W. 1920–21.	Victoria. 1920–21.	Q'land. 1920.	S. Aust. 1920–21.	W. Aust. 1920.	Tasmania. 1920.	C'wealth.
	£	£	£	£	£	£	£
Land and buildings	28,428,917	17,313,350	6,261,266	4,495,067	3,350,608	981,660	60,831,468
Plant and machinery	31,115,444	18,179,385	9,615,509	4,473,247	3,340,158	1,931,527	68,655,270
Total	59,544,361	35,492,735	15,876,775	8,968,314	6,690,766	2,913,187	129,486,738

The total capital invested in land, buildings, plant and machinery in manufacturing industries in the Commonwealth during the year 1920–21 was approximately £129,486,738 (or £23 19s. 2d. per head of population); of that sum £60,831,468 was invested in land and buildings occupied as manufactories, the remaining £68,655,270 being the value of the plant and machinery used in connexion therewith.

2. **Value of Land and Buildings.**—The value of the land and buildings occupied in connexion with manufacturing industries may be conveniently classified according to the nature of the industry concerned.

(i) *Total Value in Commonwealth, 1916 to 1920–21.* The following table shews for the whole Commonwealth the approximate values of land and buildings occupied in connexion with manufacturing industries of various classes during each year from 1916 to 1920–21 inclusive :—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN COMMONWEALTH, 1916 TO 1920–21.

Class of Industry.	1916. <i>a</i>	1917. <i>b</i>	1918. <i>b</i>	1918–19. <i>c</i>	1919–20. <i>c</i>	1920–21. <i>c</i>
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	1,002,686	1,126,504	1,237,117	1,415,725	1,588,513	1,811,005
II. Treating oils and fats, animal, vegetable, etc.	518,932	524,349	573,005	610,573	614,877	680,763
III. Processes in stone, clay, glass, etc.	1,620,520	1,657,760	1,739,247	1,943,848	2,216,901	2,814,447
IV. Working in wood.	2,036,786	2,083,755	2,283,985	2,349,500	2,622,071	3,061,888
V. Metal works, machinery, etc.	6,800,296	7,137,251	7,961,012	8,163,051	8,997,496	10,409,753
VI. Connected with food and drink, etc.	10,508,926	11,209,366	11,640,843	12,403,204	13,411,552	14,218,716
VII. Clothing and textile fabrics, etc.	5,239,362	5,530,472	5,695,263	6,059,980	6,876,671	8,265,497
VIII. Books, paper, printing, and engraving	3,824,069	3,891,991	4,023,048	4,029,014	4,270,008	4,738,597
IX. Musical instruments, etc.	82,695	96,335	98,680	121,883	134,462	195,072
X. Arms and explosives	212,267	252,498	260,550	257,520	264,020	275,482
XI. Vehicles and fittings, saddlery & harness, etc.	1,822,565	1,866,859	1,955,096	2,156,572	2,467,633	3,093,034
XII. Ship and boat building and repairing	1,126,754	953,879	1,009,201	1,059,529	1,122,468	1,391,113
XIII. Furniture, bedding, and upholstery	1,075,547	1,071,635	1,103,679	1,189,103	1,325,762	1,663,270
XIV. Drugs, chemicals, and by-products	1,013,577	1,109,703	1,318,731	1,393,237	1,446,721	1,687,297
XV. Surgical and other scientific instruments	70,536	83,304	94,524	106,225	104,628	132,161
XVI. Jewellery, timepieces, and plated ware	325,126	334,147	336,289	369,050	425,214	487,763
XVII. Heat, light, and power	3,150,513	3,655,063	3,873,224	3,999,806	4,342,913	4,867,348
XVIII. Leatherware, n.e.i.	137,391	150,660	165,835	178,444	231,073	304,506
XIX. Minor wares, n.e.i.	344,651	426,906	421,370	472,639	554,588	733,756
Total	40,913,199	43,212,437	45,795,704	48,278,905	53,017,571	60,831,468

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

As shown in the above table, the total net increase during the five years was £19,918,269, or an annual average of £3,983,654. The largest increases were in Classes VI., V., VII., and XVII., and amounted to £3,709,790, £3,609,457, £3,026,135, and £1,716,835 respectively.

(ii) *Value in each State, 1920-21.* The following tables give similar information for each State for the past year:—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1920-21.

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. . .	816,390	687,540	107,211	118,663	665,627	15,574	1,811,005
II. Treating oils and fats, animal, vegetable, etc. . .	436,965	162,165	34,456	41,712	(b)	5,465	680,763
III. Processes in stone, clay, glass, etc. . .	1,710,512	637,005	105,249	235,312	93,680	32,689	2,814,447
IV. Working in wood . .	1,480,220	606,460	303,871	199,867	387,416	78,054	3,061,888
V. Metal works, machinery, etc. . .	5,341,708	2,376,135	939,890	970,996	618,921	162,103	10,409,753
VI. Connected with food and drink, etc. . .	5,142,751	3,799,630	2,958,367	996,254	998,871	322,843	14,218,716
VII. Clothing and textile fabrics, etc. . .	3,504,124	3,438,815	489,615	455,720	241,066	136,157	8,265,497
VIII. Books, paper, printing, and engraving . .	2,292,796	1,222,485	563,826	353,976	248,313	57,201	4,738,597
IX. Musical instruments, etc. .	101,292	88,195	..	5,585	..	..	195,072
X. Arms and explosives . .	81,287	190,095	..	4,100	..	..	275,482
XI. Vehicles and fittings, saddlery and harness, etc. . .	1,291,448	905,415	234,938	410,938	168,804	81,691	3,093,034
XII. Ship and boat building and repairing . .	1,072,991	253,270	9,885	44,412	7,655	2,900	1,391,113
XIII. Furniture, bedding, and upholstery . .	709,271	532,895	161,783	132,988	101,231	25,102	1,663,270
XIV. Drugs, chemicals, and by-products . .	816,909	543,205	12,814	194,549	112,870	6,950	1,687,297
XV. Surgical and other scientific instruments . .	57,247	32,850	20,191	8,475	13,398	..	132,161
XVI. Jewellery, timepieces, and plated ware . .	200,115	187,720	31,160	35,133	22,320	11,315	487,763
XVII. Heat, light, and power .	2,921,204	1,181,805	252,228	245,222	228,305	38,584	4,867,348
XVIII. Leatherware, n.e.i. . .	155,764	125,965	12,120	5,355	5,070	232	304,506
XIX. Minor wares, n.e.i. . .	289,923	341,700	23,662	36,410	37,261	4,800	733,756
Total . .	28,428,917	17,313,350	6,261,266	4,495,667	3,350,608	981,660	60,831,468

(a) Includes Class II. (b) Included in Class I.

The maximum value for the Commonwealth of land and buildings in any particular class was in Class VI., amounting to £14,218,716, or 23.37 per cent. on the total value. The next in order of importance were Classes V., VII., XVII., and VIII., in which the values were £10,409,753, £8,265,497, £4,867,348, and £4,738,597 respectively. The sum of the values for the five classes mentioned amounted to £42,499,911, or 69.87 per cent. on the total value for all classes.

(iii) *Value in each State, 1916 to 1920-21.* The following table shews the total value of land and buildings occupied as manufactories in each State at the end of each year from 1916 to 1920-21 inclusive:—

VALUE OF LAND AND BUILDINGS OCCUPIED AS FACTORIES IN EACH STATE, 1916 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1916a ..	17,770,517	11,460,123	5,014,824	3,289,628	2,247,505	1,130,602	40,913,199
1917b ..	18,920,057	12,052,227	5,251,877	3,462,296	2,398,284	1,127,716	43,212,437
1918b ..	20,533,171	12,847,485	5,519,316	3,564,366	2,487,987	843,399	45,795,704
1918-19c ..	22,081,877	13,673,515	5,519,316	3,672,831	2,487,987	843,399	48,278,905
1919-20c ..	24,108,890	14,957,585	5,886,215	3,977,099	3,132,014	955,768	53,017,571
1920-21c ..	28,428,917	17,313,350	6,261,266	4,495,667	3,350,608	981,660	60,831,468

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

It will be seen that since 1916 there has been a general increase throughout the Commonwealth. The States shewing the largest growth were New South Wales, Victoria, and Queensland, with annual average increases of £2,131,680, £1,170,645, and £249,288 respectively.

3. Value of Plant and Machinery.—(i) *Total Value in Commonwealth, 1916 to 1920-21.* The following table shews for the whole Commonwealth the approximate value of plant and machinery used in factories during each year from 1916 to 1920-21 inclusive:—

VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN COMMONWEALTH,
1916 TO 1920-21.

Class of Industry.	1916. <i>a</i>	1917. <i>b</i>	1918. <i>b</i>	1918-19. <i>c</i>	1919-20. <i>c</i>	1920-21. <i>c</i>
	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc.	965,932	1,048,729	1,216,281	1,382,538	1,668,023	1,823,119
II. Treating oils and fats, animal, vegetable, etc.	576,877	597,327	634,936	688,737	712,583	829,390
III. Processes in stone, clay, glass, etc.	1,866,993	1,972,885	2,172,225	2,414,539	2,853,294	3,565,083
IV. Working in wood	2,806,653	2,784,838	2,915,781	3,063,111	3,398,146	4,083,711
V. Metal works, machinery, etc.	8,604,804	9,549,635	10,259,558	10,702,907	11,959,693	14,688,625
VI. Connected with food and drink, etc.	11,654,182	12,318,334	13,026,771	13,648,102	14,532,708	16,472,128
VII. Clothing and textile fabrics, etc.	1,846,758	1,926,718	2,006,983	2,255,623	3,059,732	3,781,164
VIII. Books, paper, printing, and engraving	3,054,941	3,070,739	3,124,559	3,225,151	3,684,858	4,246,439
IX. Musical instruments, etc.	21,191	22,841	26,827	26,532	31,302	58,078
X. Arms and explosives	228,210	308,536	323,073	345,880	327,700	304,800
XI. Vehicles and fittings, saddlery and harness, etc.	421,416	433,716	477,472	532,361	627,087	853,259
XII. Ship and boat building and repairing	511,237	1,312,832	1,477,247	1,627,143	1,711,746	1,520,756
XIII. Furniture, bedding, and upholstery	251,822	267,180	281,229	306,853	369,738	466,952
XIV. Drugs, chemicals, and by-products	868,126	906,091	1,055,262	1,091,229	1,264,703	1,497,619
XV. Surgical and other scientific instruments	13,873	19,021	19,813	23,333	28,257	32,299
XVI. Jewellery, timepieces, and plated ware	74,617	72,757	75,437	84,453	103,690	114,892
XVII. Heat, light, and power	9,970,117	10,365,297	11,274,492	12,023,382	13,127,358	13,515,725
XVIII. Leatherware, n.e.f.	34,240	33,029	37,103	40,477	48,136	66,544
XIX. Minor wares, n.e.f.	234,313	305,358	387,256	413,457	490,840	734,687
Total	44,006,302	47,315,863	50,792,305	53,897,808	59,999,594	68,655,270

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

It will be seen that during the period in question there has been a steady and substantial net increase amounting in all to £24,648,968, or an annual average of £4,929,794. Development has occurred in all classes of industry, the largest increase being in Class V., "Metal Works, Machinery, etc.," where it amounted to £6,083,821, while the two next were in Class VI., "Connected with Food and Drink, etc.," with an increase of £4,817,946, and Class XVII., "Heat, Light, and Power," £3,545,608.

(ii) *Value in each State, 1916 to 1920-21.* The figures which were given in the above table referred to the Commonwealth as a whole. In the following table they are shewn for each State, and it will be seen that the increase referred to above is general throughout the States. New South Wales shews by far the largest increase, viz., £12,904,340; while Victoria comes next with £7,110,436. The establishment of the Electrolytic Zinc Works at Risdon, and a further extension of the State Hydro-electric Works to cope with the demand for increased power, were mainly responsible for the substantial increase noted in Tasmania during 1918.

VALUE OF PLANT AND MACHINERY IN FACTORIES, 1916 TO 1920-21.

Year.	N.S.W.	Victoria.	Queensland.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1916a ..	18,211,104	11,068,949	7,543,873	8,101,413	2,817,863	1,263,100	44,006,302
1917b ..	20,364,122	11,732,062	7,846,884	8,313,113	2,835,085	1,224,647	47,315,863
1918b ..	21,739,739	12,612,797	8,391,480	8,349,719	2,742,386	1,916,184	50,792,305
1918-19c ..	23,651,152	13,645,220	8,391,480	8,551,386	2,742,386	1,916,184	53,897,808
1919-20c ..	26,361,083	15,846,935	8,867,803	8,931,572	2,938,889	2,048,322	59,999,594
1920-21c ..	31,115,444	18,179,385	9,615,509	4,473,247	3,340,158	1,931,527	68,655,270

(a) See note (a) first table this section.

(b) See note (b) first table this section.

(c) See note (c) first table this section.

(iii) *Classified Value in each State.* The following table shows the value of plant and machinery used in factories in each State during 1920-21, classified according to the nature of the industry in which used:—

VALUE OF PLANT AND MACHINERY USED IN FACTORIES IN EACH STATE, 1920-21.

Class of Industry.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
	£	£	£	£	£	£	£
I. Treating raw material, product of agricultural and pastoral pursuits, etc. ..	857,651	588,490	165,036	98,424	665,559	47,959	1,823,119
II. Treating oils and fats, animal, vegetable, etc. ..	540,083	194,045	55,644	37,922	(b)	1,696	829,390
III. Processes in stone, clay, glass, etc. ..	2,172,118	690,145	198,055	369,287	104,638	30,840	3,565,083
IV. Working in wood ..	1,249,687	886,610	613,172	110,573	1,006,342	217,327	4,083,711
V. Metal works, machinery, etc. ..	8,776,438	2,509,680	1,276,966	862,233	414,917	848,391	14,688,625
VI. Connected with food and drink, etc. ..	5,621,432	3,819,015	5,236,821	841,805	763,250	189,805	16,472,128
VII. Clothing and textile fabrics, etc. ..	1,231,236	2,107,270	160,472	156,968	45,288	79,930	3,781,164
VIII. Books, paper, printing, and engraving ..	1,975,979	1,417,890	354,032	257,290	185,036	56,212	4,246,439
IX. Musical instruments, etc. ..	36,196	20,315	..	1,567	..	..	58,078
X. Arms and explosives ..	96,900	207,450	..	450	..	..	304,800
XI. Vehicles and fittings, saddlery and harness, etc. ..	364,659	268,965	57,870	114,450	31,310	16,005	853,259
XII. Ship and boat building and repairing ..	1,327,956	106,360	9,750	73,920	1,600	1,170	1,520,756
XIII. Furniture, bedding, and upholstery ..	188,087	134,990	60,111	43,946	28,781	11,037	466,952
XIV. Drugs, chemicals, and by-products ..	645,537	419,745	7,572	304,588	119,042	1,135	1,497,619
XV. Surgical and other scientific instruments ..	13,977	9,170	3,315	4,434	1,403	..	32,299
XVI. Jewellery, timepieces, and plated ware ..	42,530	51,975	5,838	10,321	2,376	1,852	114,892
XVII. Heat, light, and power ..	5,739,368	4,243,670	1,405,218	1,140,780	559,381	427,308	13,515,725
XVIII. Leatherware, n.e.l. ..	27,724	34,095	2,148	952	1,360	265	66,544
XIX. Minor wares, n.e.l. ..	207,886	469,505	3,489	43,337	9,875	595	734,687
Total ..	31,115,444	18,179,385	9,615,509	4,473,247	3,340,158	1,931,527	68,655,270

(a) Includes Class II.

(b) Included in Class I.

The greatest value for any particular class of industry is for Class VI., "Connected with Food and Drink, etc.," and amounts to £16,472,128, or 23.99 per cent. on the total for all classes. The next in order of importance is Class V., "Metal Works, Machinery, etc.," which amounts to £14,688,625, or 21.39 per cent. on the total; followed by Class XVII., "Heat, Light, and Power," amounting to £13,515,725, or 19.69 per cent. on the total value. The total for these three classes amounts to £68,655,270, or 65.07 per cent. on the total value for all classes.

§ 10. Individual Industries.

1. **General.**—The preceding remarks and tables furnish a general view of the recent development of particular classes of industries in Australia treated under the nineteen categories referred to in § 1, 3 hereof. In order to make the information complete, it is necessary to furnish details of the development of individual industries. While it is not possible, within the limits of this section, to give a full and detailed account of all the manufacturing industries of the Commonwealth, it is proposed to deal herein with such particular industries as are of special importance by reason of the number of persons employed, the number of factories, the amount of capital invested therein, the value of the production, or other features of special interest. In cases where there are only one or two establishments of a particular class in any State, returns relative to output are not published, in order to avoid disclosing information as to the operations of individual factories.

2. **Tanning Industry.**—(i) *Details for each State.* In Class I. (see § 1, 3 hereof) the most important industry is tanning. Until recent years, the production of tanneries in Australia was confined to the coarser class of leathers, but lately the tanning of the finer skins has been undertaken with satisfactory results. The position of the industry in the several States is as follows:—

TANNERIES, 1920-21.

Item.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S.A. 1920-21.	W.A. 1920.	Tas. 1920.	C'with.
Number of factories	80	48	17	10	6	8	164
Number of employees	1,242	2,137	265	209	100	73	4,026
Actual horse-power of engines employed	2,688	3,179	316	347	220	118	6,868
Approx. value of land and buildings £	265,166	338,985	21,740	29,204	21,530	8,267	684,892
Approx. value of plant and machinery £	172,132	277,160	27,336	18,327	17,340	8,105	520,400
Total amount of wages paid during year £	262,724	446,231	44,985	41,160	16,485	14,166	825,751
Value of fuel used	£ 17,855	35,610	3,065	3,920	1,339	458	62,247
Value of raw material worked up	£ 1,684,791	2,096,554	404,742	186,883	128,351	94,900	4,596,271
Total value of output	£ 2,103,525	2,943,173	588,714	265,573	165,877	112,550	6,179,417
Value added in process of manufacture £	418,734	846,619	183,972	78,695	37,526	17,600	1,583,146

(ii) *Raw Materials used in Tanneries.* The quantities of raw materials used in tanneries in each State are shewn in the following table:—

RAW MATERIALS USED IN TANNERIES, 1920-21.

Particulars.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Hides and calf skins .. No. ..	791,082	1,002,864	102,058	73,769	31,841	21,174	2,022,788
Sheep pelts	3,813,618	1,137,643	95,043	79,782	..	43,587	5,169,683
Other skins	262,794	268,829	299,924	8,207	42,939	1,123	883,816
Bark Tons ..	11,519	10,709	2,352	1,437	794	462	27,273

(iii) *Progress of Tanning Industries, 1916 to 1920-21.* The development of the tanning industry during the period 1916 to 1920-21 is shewn in the following table:—

DEVELOPMENT OF TANNING INDUSTRY IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917. ^a	1918.	1918-19. ^b	1919-20.	1920-21.
Number of factories	163	156	153	153	160	164
Number of employees	3,303	3,437	3,396	3,688	4,147	4,026
Actual horse-power of engines used	4,145	4,449	4,884	5,247	6,367	6,868
Approx. value of land and buildings £	387,706	412,311	441,737	459,163	552,521	684,892
Approx. value of plant and machinery £	285,956	307,483	328,927	360,682	422,972	520,400
Total amount of wages paid	£ 422,014	466,071	493,880	577,043	777,368	825,751
Value of fuel used	£ 27,292	34,102	40,558	45,957	60,981	62,247
Value of raw materials worked up	£ 3,283,787	3,951,266	3,831,180	4,423,092	6,837,835	4,596,271
Value of final output	£ 4,233,427	4,979,988	4,990,412	5,762,741	8,772,336	6,179,417
Value added in process of manufacture £	949,640	1,028,722	1,159,232	1,339,649	1,934,501	1,583,146

(^a) Including one wool-scouring and fellmongering establishment in Western Australia.

(^b) Including fellmongering in Tasmania.

The above table discloses increases in all the items of the tanning industry since 1916. The monetary increases, however, are merely a reflection of the enhanced value of commodities during recent years, for, while the value of the finished product in tanneries increased by 46 per cent. since 1916, the volume of leather turned out represented an increase of only 4.68 per cent. on the earlier output.

3. *Fellmongering and Wool-scouring.*—(i) *Details for each State.* The next industry in importance in Class I. is that of fellmongering and wool-scouring, one of the earliest industries established in Australia. The following table gives particulars of the industry in each State during the past year :—

FELLMONGERING AND WOOL-SCOURING, 1920-21.

Items.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W.A. 1920.	Tas. 1920.	C'wealth.
Number of factories	42	32	18	3	2	..	97
Number of employees	1,461	714	387	76	69	..	2,707
Actual horse-power of engines used ..	3,623	1,528	822	160	145	..	6,278
Approx. value of land and buildings £	276,320	172,195	75,615	a	a	..	548,084
Approx. value of plant and machinery £	372,442	159,235	121,242	a	a	..	681,366
Total amount of wages paid £	280,731	128,901	70,800	a	a	..	510,286
Value of fuel used	39,542	25,520	12,192	a	a	..	84,833
Value of raw material worked up £	2,991,868	997,727	2,104,240	a	a	..	6,682,138
Value of final output	3,677,014	1,236,904	2,320,341	a	a	..	7,913,477
Value added in process of manufacture £	685,146	259,177	216,101	a	a	..	1,231,339

(a) Information not available for publication.

(b) Including South Australia and Western Australia.

(ii) *Development of Fellmongering and Wool-scouring, 1916 to 1920-21.* The following return furnishes particulars of fellmongering and wool-scouring establishments in the Commonwealth for the last six years :—

DEVELOPMENT OF FELLMONGERING AND WOOL-SCOURING IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917. ^a	1918.	1918-19.	1919-20.	1920-21.
Number of factories	100	98	102	107	110	97
Number of employees	2,379	2,599	3,191	3,392	3,610	2,707
Actual horse-power of engines used ..	4,463	4,157	4,901	5,707	6,025	6,278
Approx. value of land and buildings £	263,530	276,162	348,170	466,658	514,499	548,084
Approx. value of plant and machinery £	334,131	369,728	438,301	584,343	683,227	681,366
Total amount of wages paid £	270,128	332,583	404,079	517,161	652,842	510,286
Value of fuel used	44,914	53,667	66,113	84,478	99,981	84,833
Value of raw materials worked up £	5,903,149	7,341,638	10,290,131	11,213,481	12,279,135	6,682,138
Value of final output	6,989,122	8,572,579	12,105,929	13,126,314	14,745,652	7,913,477
Value added in process of manufacture £	1,085,973	1,230,941	1,815,798	1,912,833	2,466,517	1,231,339

(a) Excluding one establishment in Western Australia, particulars of which are included in tanneries.

The wool-scouring industry developed considerably under the regime of the Central Wool Committee, and during 1919-20 the record output of 107,726,653 lbs. of scoured wool was produced, which represented an increase of nearly 100 per cent. on any pre-war production. The depressed condition of the wool market during 1920-21 adversely affected the output of scoured wool during the latter year.

4. *Soap and Candle Factories.*—(i) *Details for each State.* In Class II. (see § 1, 3 hereof) soap and candle factories are the most important establishments. The manufacture of these two products is frequently carried on in the same factory, so that separate returns cannot be obtained; it may, however, be said generally that the manufacture of soap is the more important of the two. The following table gives particulars of soap and candle factories in each State during the year 1920-21.

SOAP AND CANDLE FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W.A. 1920.a	Tas. 1920.	C'wealth.
Number of factories	26	16	18	6	..	1	62
Number of employees	946	696	171	175	..	20	2,008
Actual horse-power of engines employed	964	472	155	181	..	10	1,782
Approx. value of land and buildings £	223,423	135,995	b	28,300	..	b	426,339c
Approx. value of plant and machinery £	287,714	164,110	b	29,643	..	b	537,534c
Total amount of wages paid during year £	141,135	115,749	b	36,207	..	b	326,449c
Value of fuel used	£ 40,160	37,545	b	4,868	..	b	88,728c
Value of raw material worked up	£ 859,555	799,098	b	240,474	..	b	2,119,957c
Total value of output	£ 1,177,511	1,134,820	b	300,550	..	b	2,941,833c
Value added in process of manufacture £	317,956	335,722	b	60,076	..	b	821,876c

(a) Western Australia has three soap and candle establishments, but separate details are not available for publication. (b) Particulars not available for publication. (c) Including Queensland and Tasmania.

(ii) *Development of Soap and Candle Factories, 1916 to 1920-21.* The following table gives similar particulars for the last six years as regards the Commonwealth as a whole :—

DEVELOPMENT OF SOAP AND CANDLE FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.a	1918.a	1918-19.a	1919-20.b	1920-21.b
Number of factories	72	65	62	60	61	62
Number of employees	2,009	2,049	2,128	1,902	2,163	2,008
Actual horse-power of engines used ..	1,477	1,165	1,083	1,568	1,749	1,782
Approx. value of land and buildings ..£	391,619	373,377	400,517	426,909	428,824	426,339
Approx. value of plant and machinery £	447,005	424,942	444,219	488,402	486,187	537,534
Total amount of wages paid	£ 219,398	228,284	242,960	251,762	296,352	326,449
Value of fuel used	£ 38,548	52,085	67,639	65,469	81,938	88,728
Value of raw material worked up	£ 1,318,105	1,407,431	1,762,408	1,830,417	2,389,706	2,119,957
Value of final output	£ 1,965,881	2,036,978	2,550,562	2,618,806	3,377,783	2,941,833
Value added in process of manufacture £	647,776	629,547	788,154	788,389	988,077	821,876

(a) Excluding three soap and candle establishments in Western Australia, and one in Tasmania.

(b) Excluding three soap and candle establishments in Western Australia.

(iii) *Production of Soap and Candles, 1916 to 1920-21.* The subjoined statement furnishes particulars of the output of soap and candles during the past six years :—

PRODUCTION OF SOAP AND CANDLES IN THE COMMONWEALTH, 1916 TO 1920-21.

Particulars.	1916.a	1917.a	1918.a	1918-19.a	1919-20.a	1920-21.a
Soap cwt.	727,349	671,326	746,166	694,456	788,478	692,192
Candles "	102,775	100,497	101,098	97,692	104,876	87,304

(a) Exclusive of Western Australia.

(iv) *Raw Materials Used, 1916 to 1920-21.* The following statement shews the quantity of certain raw materials used in soap and candle factories in the Commonwealth during the years 1916 to 1920-21 :—

RAW MATERIALS USED IN SOAP AND CANDLE FACTORIES, 1916 TO 1920-21.

Particulars.	1916.a	1917.a	1918.a	1918-19.a	1919-20.a	1920-21.a
Tallow cwt.	416,649	382,188	423,021	431,638	390,267	353,001
Alkali "	154,348	143,683	144,112	126,981	123,101	120,882
Cocconut oil gal.	630,298	524,918	533,685	624,802	469,549	459,013

(a) Exclusive of Western Australia.

5. **Saw Mills, etc.**—The most important industry in Class IV. is that of saw-milling. As separate particulars of forest saw mills are not available for some of the States, both forest and other saw mills, as well as joinery, moulding, and box factories have been combined in the following table :—

SAW MILLS, FOREST AND OTHER, JOINERY, ETC., 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories	714	539	286	83	117	158	1,897
Number of employees	8,404	8,818	5,074	1,443	4,339	1,996	30,074
Actual horse-power of engines employed	18,849	15,309	10,054	2,422	8,593	2,720	57,947
Approximate value of land and buildings £	1,312,912	529,480	275,878	195,112	387,416	73,154	2,773,952
Approximate value of plant and machinery £	1,148,752	816,555	574,564	108,763	1,006,342	213,414	3,868,390
Total amount of wages paid during year £	1,464,564	1,541,635	840,554	275,655	823,188	302,685	5,248,331
Value of fuel used £	42,845	31,605	11,734	8,414	4,500	3,007	102,195
Value of raw material worked up	3,924,936	2,215,103	1,533,933	1,332,543	200,759	137,393	9,344,674
Total value of output £	6,066,819	4,751,356	2,971,079	1,750,478	1,275,724	630,579	17,446,035
Value added in process of manu- facture £	2,141,883	2,536,253	1,437,146	417,930	1,074,965	493,184	8,101,361

The development of forest and other saw mills, etc., since 1916 is shown in the following table :—

DEVELOPMENT OF SAW MILLS, FOREST AND OTHER, JOINERY, ETC., IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of establishments	1,526	1,517	1,575	1,621	1,766	1,897
Number of employees	22,173	20,902	22,756	24,427	28,171	30,074
Actual horse-power of engines used	44,456	43,833	45,756	46,641	51,691	57,947
Approx. value of land and buildings £	1,845,812	1,901,505	2,086,166	2,132,509	2,376,011	2,773,952
Approx. value of plant and machinery £	2,693,132	2,662,625	2,784,355	2,937,691	3,253,706	3,868,390
Total amount of wages paid £	2,552,197	2,558,412	2,870,214	3,189,087	4,052,707	5,248,331
Value of fuel used £	52,273	60,567	69,506	78,294	91,341	102,195
Value of raw material worked up £	4,487,201	4,463,996	5,159,691	5,773,999	7,624,110	9,344,674
Value of final output £	8,297,110	8,443,255	9,829,872	10,890,530	14,276,983	17,446,035
Value added in process of manufacture £	3,809,909	3,979,259	4,670,181	5,116,531	6,652,873	8,101,361

The pre-war development in the building and other trades in Australia using timber received a temporary set-back during the war years, but the all-round increases since 1918 in wages, value of materials used, and final output, as well as in capital invested in land and buildings and plant and machinery, show that the trade has practically regained its normal rate of progression.

6. **Agricultural Implement Factories.**—The manufacture of agricultural implements is an important industry in Australia, and is of particular interest owing to the fact that it was one of the first industries to which it was sought to apply the so-called "New Protection" system. The articles manufactured include stripper harvesters, strippers, stump-jump and other ploughs, harrows, disc and other cultivators, winnowers, corn-shellers and baggers, drills, and other implements usually employed in agriculture. The stripper-harvester, which combines the stripper with a mechanism for winnowing and bagging grain, is an Australian invention, and is exported to many countries.

The following table gives particulars of the agricultural implement works of Australia for the year 1920-21 :—

AGRICULTURAL IMPLEMENT WORKS, 1920-21.

Items.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S.A. 1920-21.	W.A. 1920.a	Tas. 1920.	C'wealth. c
Number of factories	28	60	6	46	..	1	141
Number of employees	544	2,711	70	971	..	3	4,299
Actual horse-power of engines employed	312	1,197	107	957	..	3	2,576
Approx. value of land and buildings £	121,894	182,830	b	78,026	..	b	392,870
Approx. value of plant and machinery £	48,637	288,630	b	82,196	..	b	431,152
Total amount of wages paid during year £	115,592	512,363	b	158,632	..	b	794,554
Value of fuel used	£ 3,875	42,193	b	9,248	..	b	55,709
Value of raw material worked up	£ 92,047	756,204	b	205,994	..	b	1,064,611
Total value of output	£ 272,875	1,550,704	b	436,177	..	b	2,288,713
Value added in process of manufacture £	181,828	794,500	b	230,183	..	b	1,224,102

(a) Western Australia has three agricultural implement establishments, but separate details are not available for publication. (b) Information not available for publication. (c) Excluding Western Australia.

A glance at the following table shews that the Agricultural Implement industry failed to progress during the war years. The 1920-21 statistics, however, reveal an encouraging expansion in all the essential items of production, the value of the finished product increasing by more than 78 per cent. during the year.

DEVELOPMENT OF AGRICULTURAL IMPLEMENT WORKS IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.a	1918.b	1918-19.b	1919-20.b	1920-21.b
Number of factories	151	142	142	138	141	141
Number of employees	3,538	3,313	3,336	2,914	3,116	4,299
Actual horse-power of engines used	2,811	2,613	2,566	2,338	2,505	2,576
Approx. value of land and buildings £	355,108	340,521	355,830	367,951	368,897	392,870
Approx. value of plant and machinery £	336,397	339,244	360,621	350,754	372,949	431,152
Total amount of wages paid	£ 425,866	427,102	428,522	420,750	465,558	794,554
Value of fuel used	£ 29,067	27,659	30,011	26,755	30,096	55,709
Value of raw material worked up	£ 757,231	798,110	762,969	531,766	586,048	1,064,611
Value of final output	£ 1,457,645	1,465,955	1,415,375	1,149,121	1,282,931	2,288,713
Value added in process of manufacture £	700,414	667,845	652,406	617,355	696,883	1,224,102

(a) Excluding three establishments in Western Australia and one in Tasmania.

(b) Excluding three establishments in Western Australia.

7. Engineering Works, Ironworks, and Foundries.—The classification in these industries is not very satisfactory. Generally, engineering shops, ironworks, and foundries are included, as also are factories for making nails, safes, patterns, meters, and springs. Railway workshops, agricultural implement factories, cyanide, smelting, pyrites, and metallurgical works, galvanised iron, stoves and ovens, and wire working establishments are not included. The combination of industries is rendered necessary owing to the limited classification still adopted by some of the States.

ENGINEERING WORKS, IRONWORKS, AND FOUNDRIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.a	Tas. 1920.	C'wealth.
Number of factories	429	566	96	71	67	19	1,248
Number of employees	16,236	11,637	2,417	1,907	1,218	499	33,914
Actual horse-power of engines employed	31,300	12,247	1,799	1,507	1,645	354	48,852
Approximate value of land and buildings	£ 2,434,071	1,060,720	242,838	163,364	166,357	41,290	4,108,640
Approximate value of plant and machinery	£ 3,726,526	1,303,150	263,727	205,212	158,866	44,907	5,702,388
Total amount of wages paid during year	£ 3,376,811	2,104,090	418,634	326,924	219,904	77,288	6,523,651
Value of fuel used	£ 341,800	213,843	23,536	27,867	17,254	4,727	631,032
Value of raw materials worked up	£ 9,796,093	3,140,686	410,553	526,201	308,018	65,639	14,247,190
Total value of output	£ 14,749,926	6,689,681	1,077,697	1,004,729	655,769	183,278	24,361,080
Value added in process of manufacture	£ 4,953,833	3,548,995	667,144	478,528	347,751	117,639	10,113,890

(a) Including three agricultural implement establishments.

In addition to engineering works which supply ordinary requirements, there is now a number of large and important establishments which engage in the manufacture of special classes of machinery and implements. The manufacture of mining and smelting machinery and apparatus forms an important section of this industry.

The development of engineering works, ironworks, and foundries in the Commonwealth since 1916 is shewn in the following table :—

**DEVELOPMENT OF ENGINEERING WORKS, IRONWORKS, AND FOUNDRIES,
1916 TO 1920-21.**

Items.	1916.	1917.a	1918.a	1918-19a.	1919-20a.	1920-21a.
Number of factories	956	962	1,012	1,058	1,141	1,248
Number of employees	25,718	23,543	23,783	25,834	31,050	33,914
Actual horse-power of engines used ..	39,658	42,502	44,317	47,078	53,410	48,852
Approx. value of land and buildings £	2,424,759	2,581,605	2,910,881	3,139,984	3,527,933	4,108,640
Approx. value of plant and machinery £	3,655,662	4,274,067	4,744,750	5,120,625	6,339,285	5,702,388
Total amount of wages paid	3,468,260	3,265,738	3,365,045	3,821,623	5,161,441	6,523,651
Value of fuel used	£ 420,139	£ 431,448	£ 493,116	£ 649,119	£ 1,037,012	£ 631,032
Value of raw material worked up ..	£ 4,718,516	£ 5,932,214	£ 7,520,930	£ 9,942,386	£ 11,928,660	£ 14,247,190
Value of final output	£ 10,205,424	£ 11,096,741	£ 13,322,795	£ 16,291,175	£ 20,209,329	£ 24,361,080
Value added in process of manufacture £	£ 5,486,908	£ 5,164,527	£ 5,801,865	£ 6,348,789	£ 8,280,669	£ 10,113,890

(a) Including three agricultural implement establishments in Western Australia.

The growth of industry during recent years has entailed the provision of machinery for our new and expanding manufactures. The difficulty of obtaining supplies from overseas during the European War and its aftermath created an opportunity of which the Australian engineering trade has availed itself largely. Since 1916 the number of establishments has increased by more than 30 per cent., the number of employees by 32 per cent., the amount of wages paid 88 per cent., the amount of capital invested in land, buildings, plant and machinery 61 per cent., and the output nearly 139 per cent. These industries are all large consumers of Australian materials, and for this reason their progress is doubly important.

8. Railway and Tramway Workshops.—(i) *Details for each State.* The railway workshops of Australia form an important item in the metal and machinery class, and are chiefly State institutions. The following table gives the details concerning them but includes also private and municipal establishments for manufacturing and repairing rolling stock :—

RAILWAY AND TRAMWAY WORKSHOPS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories	40	19	12	19	6	7	103
Number of employees	10,676	5,387	2,878	2,801	1,538	390	23,670
Actual horse-power of engines employed	6,990	2,751	2,945	1,105	2,221	130	16,142
Approximate value of land and buildings	£ 1,251,306	£ 704,420	£ 351,520	£ 364,357	£ 445,140	£ 7,075	£ 3,123,818
Approximate value of plant and machinery	£ 1,380,234	£ 591,430	£ 253,810	£ 240,746	£ 253,814	£ 90,248	£ 2,810,282
Total amount of wages paid during year	£ 2,502,377	£ 1,163,669	£ 631,034	£ 585,285	£ 313,991	£ 77,386	£ 5,273,942
Value of fuel used	£ 50,987	£ 37,974	£ 9,307	£ 20,375	£ 11,866	£ 2,447	£ 132,956
Value of raw material worked up ..	£ 1,800,799	£ 1,131,604	£ 387,875	£ 261,618	£ 191,666	£ 35,288	£ 3,808,850
Total value of output	£ 4,404,004	£ 2,566,571	£ 925,483	£ 961,135	£ 508,547	£ 122,909	£ 9,438,649
Value added in process of manufacture	£ 2,603,205	£ 1,434,967	£ 537,608	£ 699,517	£ 316,881	£ 87,621	£ 5,679,796

(ii) *Northern Territory Railway Workshop.* In addition to the above, a railway workshop is in operation in the Northern Territory. The work is confined almost exclusively to repairs to rolling stock, etc., no new goods being manufactured. For the sake of convenience this establishment is not included in any of the tables in this section.

(iii) *Development of Railway and Tramway Workshops, 1916 to 1920-21.* The following table shews the development of railway and tramway workshops in the Commonwealth since 1916 :—

**DEVELOPMENT OF RAILWAY AND TRAMWAY WORKSHOPS, ETC.,
1916 TO 1920-21.**

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories	92	94	95	94	94	103
Number of employees	22,995	20,566	18,071	19,036	21,488	23,670
Actual horse-power of engines used ..	14,350	13,363	12,874	13,434	15,626	16,142
Approximate value of land and buildings	£ 2,548,223	2,609,432	2,904,419	2,944,626	2,976,838	3,123,818
Approximate value of plant and machinery	£ 2,389,065	2,480,239	2,614,127	2,636,591	2,616,001	2,810,282
Total amount of wages paid	£ 3,409,265	3,270,817	2,839,827	3,106,829	3,977,702	5,273,942
Value of fuel used	£ 82,200	87,701	81,487	90,818	104,496	132,956
Value of raw material worked up ..	£ 2,234,063	2,010,288	1,934,645	2,082,557	2,829,907	3,808,850
Value of final output	£ 6,298,338	5,566,940	5,037,255	5,418,996	7,116,984	9,488,649
Value added in process of manufacture ..	£ 3,974,275	3,556,652	3,102,610	3,336,439	4,287,077	5,679,799

The growth of the railway and tramway systems, conjointly with heavy increases in passenger and goods traffic throughout the Commonwealth, has resulted in corresponding activity in workshops engaged in the manufacture or repair of rolling stock, etc. Since the war, however, the operations of these establishments have been restricted, on the score of economy, to necessary works, and consequently the value of output, despite enhanced prices, only increased from £6,298,338 in 1916 to £9,488,649 in 1920-21.

9. *Smelting Works, etc.*—The subjoined table gives particulars of metal smelting, cyanide, pyrites, and metallurgical works. The classification of these works does not appear to be carried out on an uniform basis in the several States, and the combination of industries is, therefore, somewhat unsatisfactory. The returns do not include particulars of plants used on mines.

SMELTING, CYANIDE, PYRITES, ETC., WORKS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W.A. 1920.	Tasmania. 1920.	C'wealth.
Number of factories	23	12	12	2	..	6	55
Number of employees	4,279	117	1,229	1,004	..	768	7,397
Actual horse-power of engines employed	24,533	174	8,012	2,546	..	9,978	45,243
Approximate value of land and buildings	£ 613,291	10,390	211,434	b	..	b	c 1,197,175
Approximate value of plant and machinery	£ 2,762,743	18,695	652,616	b	..	b	c 4,380,592
Total amount of wages paid during year	£ 901,081	21,421	270,484	b	..	b	c 1,630,435
Value of fuel used	£ 998,164	4,396	251,760	b	..	b	c 1,438,068
Value of raw material worked up ..	£ 5,626,580	106,225	707,531	b	..	b	c 7,895,007
Total value of output	£ 8,469,449	160,792	1,914,974	b	..	b	c12,565,982
Value added in process of manufacture	£ 2,842,869	54,567	1,207,443	b	..	b	c 4,670,975

(a) See third paragraph below. (b) Information not available for publication.

(c) Including South Australia and Tasmania.

In New South Wales the above figures represent twenty-three smelting works; those for Victoria include four cyanide works, four metallurgical, one pyrites, and three smelting works; Queensland smelting and cyaniding; and South Australia and Tasmania smelting works.

The above table furnishes evidence of a revival in the base metal industry. During 1920-21, 3,203 additional hands were employed, 16,720 extra horse-power was used, and the value of the final output increased from £7,908,611 to £12,565,982.

In Western Australia all the plants are worked on the mines, and are therefore not included.

10. Bacon-curing Factories.—(i) *Details for each State.* The following table gives particulars of factories engaged in bacon-curing in each State during the past year :—

BACON-CURING FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories	18	22	6	10	6	4	66
Number of employees	221	442	402	120	51	19	1,255
Actual horse-power of engines employed	569	1,343	606	217	273	75	3,083
Approx. value of land and buildings	80,699	171,755	101,431	20,501	26,904	4,473	406,063
Approx. value of plant and machinery	£ 42,098	104,540	60,627	11,508	10,887	1,693	231,353
Total amount of salaries and wages paid	£ 50,654	90,394	76,336	21,710	9,787	3,004	251,882
Value of fuel used	£ 10,945	12,911	9,657	2,096	1,710	473	37,795
Value of raw material worked up	£ 890,972	1,098,832	729,866	284,949	120,132	62,461	3,187,212
Total value of output	£ 1,041,017	1,335,186	1,257,556	328,437	142,235	71,124	4,175,555
Value added in process of manufacture	£ 150,045	236,354	527,690	43,488	22,103	8,663	988,343

(ii) *Quantity and Value of Production.* The following table shews the number of pigs killed and the quantity and value of the production of bacon-curing factories in each State for the year 1920-21 :—

PRODUCTION OF BACON-CURING FACTORIES, 1920-21.

Particulars.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920-21.	Tasmania. 1920.	C'wealth.
QUANTITY (,000 OMITTED).							
Bacon and ham .. lbs.	14,605	13,383	11,032	3,389	1,874	838	45,121
Lard .. lbs.	481	701	474	193	89	61	1,999
VALUE.							
Bacon and ham .. £	970,786	1,215,818	902,807	253,625	132,427	62,111	3,537,574
Lard .. £	22,399	48,804	33,601	9,407	4,320	3,557	117,088
Other products .. £	73,705	75,564	321,184	65,405	(b)	5,466	541,314

PIGS KILLED.

Number	143,806	140,031	124,720	38,403	(a)18,199	9,552	474,716
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(a) In Western Australia, a portion of the bacon and ham treated in factories is imported and subsequently smoked in that State. (b) Not available.

Bacon and ham and other pig products are dealt with more fully in Section IX., *Farmyard and Dairy Production.*

11. Butter, Cheese, and Condensed Milk Factories.—(i) *Details for each State.* The subjoined table gives particulars of butter, cheese, and condensed milk factories in each State during the year 1920-21:—

BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tasmania. 1920.	C'wealth.
Number of factories ..	168	184	141	44	8	34	579
Number of employees ..	1,320	2,127	1,118	228	60	128	4,981
Actual horse-power of engines employed ..	4,097	4,311	2,534	476	249	253	11,920
Approximate value of land and buildings .. £	379,044	544,150	201,935	53,614	22,213	29,008	1,229,964
Approximate value of plant and machinery .. £	451,759	694,595	259,331	38,891	21,793	25,605	1,491,974
Total amount of wages paid .. £	280,015	414,420	195,318	31,464	9,375	14,111	944,783
Value of fuel used .. £	73,457	113,685	28,738	5,935	1,401	2,140	225,356
Value of raw material worked up .. £	8,640,281	8,065,841	4,104,212	960,085	120,249	200,175	22,096,843
Total value of output .. £	9,759,021	9,194,654	5,006,038	1,048,987	148,498	243,137	25,400,335
Value added in process of manufacture .. £	1,112,740	1,128,813	901,826	88,902	28,249	42,962	3,303,492

(ii) *Development of Factories, 1916 to 1920-21.* The following table shows the progress of the factories in this industry during the past five years:—

DEVELOPMENT OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories ..	559	560	557	558	563	579
Number of employees ..	3,237	3,801	4,075	4,369	4,544	4,981
Actual horse-power of engines used ..	8,329	8,961	9,279	9,491	10,102	11,920
Approx. value of land and buildings .. £	734,636	756,454	823,176	907,148	1,060,544	1,229,964
Approx. value of plant and machinery .. £	881,267	933,086	998,841	1,107,127	1,262,706	1,491,974
Total amount of wages paid .. £	403,136	510,832	576,548	633,076	742,341	944,783
Value of fuel used .. £	70,053	101,496	116,228	140,125	167,142	225,356
Value of raw material worked up .. £	7,763,596	12,128,520	12,642,071	13,177,643	13,737,678	22,096,843
Value of final output .. £	8,974,067	14,151,299	14,322,025	15,120,395	15,989,419	25,401,335
Value added in process of manufacture ..	1,210,471	2,022,779	1,679,954	1,942,752	2,251,741	3,303,492

(a) Including one margarine establishment in South Australia.

(iii) *Quantity and Value of Production.* The following table shows the quantity and value of butter, cheese, and condensed milk produced, and the quantity of milk used in butter, cheese, and condensed milk factories in each State during the past year:—

PRODUCTION OF BUTTER, CHEESE, AND CONDENSED MILK FACTORIES, 1920-21.

Particulars.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
QUANTITY (,000 OMITTED).							
Butter lbs.	79,865	59,852	38,465	8,223	1,218	2,459	190,082
Cheese "	5,646	3,144	11,510	1,805	..	563	22,668
Condensed and concentrated milk .. "	14,938	34,038	13,363	..	..	..	62,339
VALUE (,000 OMITTED).							
Butter £	8,820	7,044	3,965	951	136	219	21,135
Cheese £	330	189	532	98	..	28	1,177
Condensed and concentrated milk .. £	495	1,421	484	..	..	..	2,400
MILK USED (,000 OMITTED).							
Butter factories .. gals.	178,376	139,661	76,961	16,446	2,763	5,757	419,964
Cheese "	5,861	3,123	9,352	1,729	..	582	20,647
Condensed milk factories .. "	4,144	9,742	3,361	..	..	..	17,247

The butter, cheese, and condensed milk industries are dealt with more fully in Section IX., *Farmyard and Dairy Production.*

12. Meat and Fish Preserving, Ice and Refrigerating Works.—These industries are now of considerable importance in Australia. Large freezing works have been installed at many ports in the Commonwealth for the purpose of freezing produce chiefly for export, while insulated space for the carriage of frozen produce is provided by a number of steamship companies trading between Australia and other parts of the world.

Particulars regarding the export of frozen beef and mutton may be found on pages 216 and 220 hereof respectively.

The particulars given in the subjoined table includes ice-making and freezing works, also meat-canning factories, separate particulars for each item for all the States not being available.

MEAT AND FISH PRESERVING, ICE AND REFRIGERATING WORKS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories	123	47	61	15	23	11	280
Number of employees	1,428	1,070	3,677	216	446	66	6,903
Actual horse-power of engines employed	7,652	7,425	11,196	1,343	2,511	241	30,368
Approximate value of land and buildings	910,956	670,230	1,588,874	a	491,707	a	53,859,454
Approximate value of plant and machinery	882,993	533,300	972,636	a	345,909	a	52,856,966
Total amount of wages paid during year	£ 246,511	£ 232,951	£ 672,769	a	£ 112,686	a	£ 1,315,018
Value of fuel used	£ 75,524	£ 61,621	£ 106,668	21,959	22,432	2,350	290,563
Value of raw material worked up ..	£ 6,120,104	£ 895,816	£ 3,023,161	30,749	223,587	3,847	10,297,264
Total value of output	£ 6,602,610	£ 1,337,431	£ 4,092,141	101,225	£ 366,284	£ 27,244	£ 12,526,935
Value added in process of manufacture	£ 482,506	£ 441,615	£ 1,068,980	70,476	£ 142,697	£ 23,397	£ 2,229,671

(a) Information not available for publication.

(b) Including South Australia and Tasmania.

The following table gives particulars, so far as available, of meat tinned during the year 1920-21 :—

MEAT PRESERVING WORKS—OUTPUT, 1920-21.

Output.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-20.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Tinned meat .. cwt.	15,634	4,849	54,537a	154b	..	..	75,174

(a) Also 21,724 cwt. salted meat. (b) Large numbers of rabbits are tinned in South Australia, but particulars are not available for publication.

Exclusive of Victoria, for which State particulars are not available, the returns shew that 140,927 tons of ice, valued at £322,581, were manufactured in the Commonwealth in 1920-21.

Full particulars of quantities and values of beef, mutton, and lamb preserved by cold process, exported from the Commonwealth during a series of years, will be found in Section VII., *Pastoral Production*.

13. Biscuit Factories.—The following table gives particulars regarding establishments at which the manufacture of biscuits, cakes, etc., was carried on in each State during the year 1920-21 :—

BISCUIT, ETC., FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories ..	10	7	20	3	10	3	53
Number of employees ..	1,800	1,440	390	178	228	144	4,380
Actual horse-power of engines employed ..	1,115	396	304	109	145	81	2,150
Approximate value of land and buildings ..	£ 164,031	93,165	67,571	a	24,600	a	5396,122
Approximate value of plant and machinery ..	£ 135,285	88,885	37,210	a	15,377	a	5298,181
Total amount of wages paid during year ..	£ 221,791	193,211	93,875	a	23,261	a	5567,007
Value of fuel used ..	£ 23,614	21,429	4,221	2,724	8,711	1,172	56,871
Value of raw material worked up ..	£ 936,747	748,647	258,056	79,044	110,870	47,124	2,180,481
Total value of output ..	£ 1,358,266	1,098,348	460,835	114,440	163,530	74,874	3,270,283
Value added in process of manufacture ..	£ 421,519	340,691	202,779	35,396	52,660	27,750	1,089,795

(a) Information not available for publication.

(b) Including South Australia and Tasmania.

14. **Jam and Fruit Preserving, Pickles, Sauces, and Vinegar.**—(i) *Details for each State.* The jam and fruit preserving industry has increased in importance of late years, consequent on the extension of fruit-growing. As an exporting industry it is comparatively recent, but is of increasing value, and during the last five years an average of 50,114,320 lbs. of jams and jellies, valued at £1,195,406, was exported annually from the Commonwealth. The subjoined table gives particulars of factories at which these industries were carried on in each State during the year 1920-21. Separate returns for the different branches of the industry are not available for most of the States.

JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories ..	44	42	17	20	9	22	154
Number of employees ..	1,932	2,098	425	502	111	1,175	6,243
Actual horse-power of engines employed ..	754	1,122	212	143	36	729	2,996
Approximate value of land and buildings ..	£ 303,549	187,200	63,121	97,034	7,438	97,513	760,855
Approximate value of plant and machinery ..	£ 193,260	147,985	51,300	67,169	5,774	50,860	516,348
Total amount of wages paid during year ..	£ 217,524	270,555	48,097	51,704	8,361	153,739	749,980
Value of fuel used ..	£ 13,841	23,760	2,369	6,025	1,293	11,449	58,737
Value of raw material worked up ..	£ 1,084,625	1,110,607	143,470	246,844	47,915	827,708	3,465,562
Total value of output ..	£ 1,444,750	2,031,226	277,687	332,032	67,875	1,109,038	5,262,608
Value added in process of manufacture ..	£ 360,725	920,626	123,217	85,188	19,960	281,330	1,797,046

(ii) *Production of Factories.* The following table shews the quantity and value of jams, pickles, and sauces manufactured in each State during 1920-21:—

QUANTITY AND VALUE OF JAMS, PICKLES, AND SAUCES MANUFACTURED, 1920-21.

Particulars.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
QUANTITY (,000 OMITTED).							
Jams .. lbs.	24,042	25,905	3,202	7,105	a	40,191	5100,445
Fruit, preserved .. lbs.	5,287	6,893	4,467	3,403	a	5,289	525,339
Pickles .. pints	2,447	1,239	495	174	134	11	4,500
Sauces .. pints	5,080	6,601	480	1,531	302	72	14,016

VALUE.

Jams ..	£ 801,334	863,438	81,825	187,796	a	938,243	52,872,636
Fruit, preserved ..	£ 195,939	255,444	137,475	47,294	a	145,212	5731,364
Pickles ..	£ 75,833	33,404	15,349	7,744	3,696	433	141,514
Sauces ..	£ 233,403	306,320	12,522	62,958	11,008	1,777	627,990

(a) Information not available for publication.

(b) Incomplete.

(iii) *Development of Factories, 1916 to 1920-21.* The following table furnishes particulars of jam and fruit preserving establishments in the Commonwealth for the last six years :—

DEVELOPMENT OF JAM AND FRUIT PRESERVING, PICKLES, SAUCES, AND VINEGAR FACTORIES, 1916 TO 1920-21.

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories ..	139	150	146	143	152	154
Number of employees ..	4,669	5,323	6,024	6,174	6,974	6,243
Actual horse-power of engines employed ..	1,714	2,059	1,991	1,945	2,526	2,996
Approx. value of land and buildings £	367,277	426,919	516,113	528,572	576,302	760,855
Approx. value of plant and machinery £	185,529	209,548	274,555	284,085	348,549	516,348
Total amount of wages paid £	365,928	443,793	538,344	570,291	731,473	749,980
Value of fuel used ..	£ 24,941	32,726	36,995	44,477	57,848	58,737
Value of raw material worked up ..	£ 1,919,102	2,271,966	2,930,403	3,326,546	3,757,611	3,465,562
Total value of output ..	£ 2,775,635	3,284,844	4,047,912	4,663,026	5,487,960	5,622,608
Value added in process of manufacture £	856,533	1,012,878	1,117,509	1,336,480	1,730,349	1,797,046

The progression of the jam and fruit preserving industry was very marked during the war years, the output of jams and jellies in 1918-19 nearly doubling any pre-war production. Though augmented values would make it appear that further progress was attained in 1919-20 and 1920-21, the volume of trade declined in both years, and the output for the latter year was practically identical with that for 1916.

15. Confectionery.—(i) *Details for each State.* The following table reveals the position of the confectionery industry. Its growth will be apparent when it is stated that at the close of 1900 there were in New South Wales only 16 establishments, with 706 employees, and in Victoria 16 establishments, employing 731 persons, the plant and machinery in the former State being valued at £2,815, and in the latter at £19,070.

CONFECTIONERY FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories ..	82	87	8	13	5	5	200
Number of employees ..	2,625	3,108	637	455	276	36	7,137
Actual horse-power of engines employed ..	1,247	2,759	178	398	263	17	4,862
Approximate value of land and buildings ..	£ 554,005	342,730	45,271	51,290	42,159	5,925	1,041,380
Approximate value of plant and machinery ..	£ 599,436	561,380	25,679	52,779	36,558	3,050	1,278,882
Total amount of wages paid during year ..	£ 388,774	402,583	63,319	44,587	30,152	3,171	937,536
Value of fuel used ..	£ 30,317	52,922	2,414	5,667	2,336	319	93,975
Value of raw material worked up £	1,565,801	1,437,394	123,363	198,924	81,155	14,835	3,421,474
Total value of output ..	£ 2,569,333	2,183,809	230,700	286,320	127,408	22,415	5,419,985
Value added in process of manufacture ..	£ 1,003,532	746,415	107,335	87,396	46,253	7,580	1,998,511

(ii) *Development of Confectionery Factories, 1916 to 1920-21.* The progress of the confectionery industry during the past five years may be seen from the following table :—

DEVELOPMENT OF CONFECTIONERY FACTORIES, 1916 TO 1920-21.

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories ..	117	131	147	156	181	200
Number of employees ..	4,570	5,266	5,856	6,710	7,323	7,137
Actual horse-power of engines employed ..	2,181	2,802	3,277	3,503	4,067	4,862
Approx. value of land and buildings £	462,555	495,488	554,099	775,670	878,305	1,041,380
Approx. value of plant and machinery £	294,351	354,539	419,986	562,475	664,452	1,278,882
Total amount of wages paid during year ..	£ 377,310	463,067	515,774	654,818	755,238	937,536
Value of fuel used ..	£ 27,662	45,304	63,674	74,995	75,084	93,975
Value of raw material worked up ..	£ 1,406,451	1,586,353	1,894,187	2,354,962	2,897,859	3,421,474
Total value of output ..	£ 2,173,675	2,504,732	2,969,573	3,597,148	4,559,437	5,419,985
Value added in process of manufacture £	767,224	918,379	1,075,386	1,242,186	1,661,578	1,998,511

The embargo placed on the importation of luxuries during the war period was responsible for a considerable expansion of the confectionery industry in Australia.

During the past five years the number of factories increased by 71 per cent., the number of employees by 56 per cent., and the actual horse-power of engines used by 123 per cent., while the values of the salaries and wages paid, and of the final output shewed increases amounting to 148 and 149 per cent. respectively.

16. Flour Mills.—The following table shews the position of the flour-milling industry :—

FLOUR MILLS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920-21.	S. Aust. 1920-21. a	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories	60	51	11	40	16	6	184
Number of employees	1,023	947	259	581	418	112	3,340
Actual horse-power of engines employed	6,384	5,253	1,025	2,912	2,706	450	18,730
Approx. value of land and buildings £	561,688	260,760	82,650	155,247	142,655	34,860	1,237,800
Approx. value of plant and machinery	£ 572,456	373,060	94,263	185,744	128,403	14,475	1,368,401
Total amount of wages paid during year	£ 219,964	191,688	54,221	102,623	82,383	18,352	669,231
Value of fuel used	£ 37,746	45,121	8,026	27,492	16,819	2,848	137,852
Value of raw material worked up	£ 4,951,650	5,120,260	1,164,839	2,048,159	2,176,055	526,053	15,987,016
Total value of output	£ 5,500,405	5,745,507	1,379,191	2,351,201	2,423,267	602,695	18,002,356
Value added in process of manufacture	£ 638,755	625,247	214,352	303,132	247,212	76,642	2,105,340

(a) The manufacture of cornflour, oatmeal, etc., was also carried on in some of these establishments.

The production of flour by the mills in each State of the Commonwealth in the years 1916 to 1920-21 was as follows :—

FLOUR MILLS—PRODUCTION, 1916 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	Tons. <i>a</i>	Tons. <i>a</i>	Tons. <i>a</i>	Tons. <i>a</i>	Tons. <i>a</i>	Tons. <i>a</i>	Tons. <i>a</i>
1916 ^b ..	254,393	134,401	42,559	49,404	70,912	25,369	577,038
1917 ^c ..	331,233	263,095	46,244	105,925	102,300	21,178	869,975
1918 ^c ..	355,843	311,450	45,589	135,882	119,876	17,121	985,761
1918-19 ^d ..	377,107	347,841	45,589	138,734	119,876	17,121	1,046,268
1919-20 ^d ..	348,691	353,683	49,300	134,727	141,516	22,311	1,050,228
1920-21 ^d ..	244,818	260,032	54,383	98,557	120,125	23,596	801,511

(a) Tons of 2,000 lbs. (b) See note (a) first table this section. (c) See note (b) first table this section. (d) See note (c) first table this section.

The total production of flour for the Commonwealth for the last year, viz., 801,511 tons, was valued at £14,845,904; in addition 336,375 tons of bran and pollard, valued at £2,966,483, were made. The total quantity of wheat ground was 38,386,962 bushels.

17. Sugar Mills.—The following table shews the position of the cane-crushing branch of the sugar-making industry. This industry is carried on in Queensland and New South Wales, the only States of the Commonwealth in which sugar-cane is grown.

SUGAR MILLS, 1920-21.

Items.	N.S.W. 1920-21.	Queensland. 1920.	Total.
Number of factories	3	34	37
Number of employees	437	4,851	5,288
Actual horse-power of engines employed ..	1,279	18,790	20,069
Approximate value of land and buildings ..	£ 106,070	438,079	544,149
Approximate value of plant and machinery ..	£ 425,283	3,173,030	3,598,313
Total amount of wages paid during year ..	£ 63,003	639,848	702,851
Value of fuel used	£ 8,636	65,571	74,207
Value of raw material worked up	£ 303,651	3,430,095	3,733,746
Total value of output	£ 476,405	5,035,562	5,511,967
Value added in course of manufacture ..	£ 172,754	1,605,467	1,778,221

The product of the sugar mill is raw sugar and molasses, the former being sent to the refineries in different parts of Australia for further treatment. Part of the molasses produced is used for distillation, part is prepared for human consumption, part is turned into food cake for cattle, and part is used for manuring land, but a considerable quantity is allowed to run to waste. The following tables shew the progress of this industry in each State from the dates at which information is first obtainable:—

SUGAR MILLS, NEW SOUTH WALES, 1870 TO 1920-21.

Items.	1870.	1877.	1886.	1896.	1901.	1916-17.	1917-18	1918-19.	1919-20.	1920-21.
No. of factories	27	50	64	23	12	3	3	3	3	3
No. of employees	..	1,065	2,259	1,475	695	427	367	432	419	437
Cane crushed tons	a	a	a	a	a	143,558	174,881	105,234	91,321	131,313
Sugar produced tons	677	7,537	13,750	28,557	19,519	16,064	19,875	12,278	10,837	15,124
Molasses produced gals.	..	345,543	507,000	2,320,530	1,300,909	781,870	975,770	536,925	494,600	649,800

(a) Not available.

The reduction in the number of New South Wales mills is due chiefly to the tendency towards concentration of cane-crushing in mills fitted with modern machinery, and the consequent closing of the small home mill. On the north coast of New South Wales some land formerly devoted to sugar-growing has been turned into pasture in connexion with the dairying industry.

SUGAR MILLS, QUEENSLAND, 1868 TO 1920.

Items.	1868.	1876.	1886.	1896.	1901.	1911.	1918.	1919.	1920.
No. of factories	10	70	118	63	52	49	42	32	34
No. of employees .. .. .	..	b	b	3,796	b	4,295	5,214	4,098	4,851
Cane crushed tons	..	7,245c	40,756c	66,640c	73,160c	1,534,451	1,674,829	1,258,760	1,339,455
Sugar produced, tons	619	8,214	59,225	100,774	120,853	173,296	189,978	162,136	167,401
Molasses— Sold to distillers and others, gals.	..	..	..	..	..	2,393,660	1,662,454	916,291	985,951
Used as fodder gals.	..	..	..	..	..	789,564	1,602,962	1,517,167	1,381,041
Used as manure gals.	b	b	b	b	b	223,000	109,000	141,175	24,000
Run to waste or burnt a gals.	..	..	..	..	..	1,847,333	3,501,668	3,347,655	3,050,901
In stock .. .. .	..	..	..	..	..	1,197,626	923,307	933,542	733,974
Total molasses a gals.	68,622	416,415	1,784,266	2,195,470	3,679,952	6,451,192	7,790,331	6,855,830	6,175,867

(a) Quantity recorded; large quantities run to waste of which no record is kept. (b) No record. (c) Acres crushed.

Information regarding the cultivation of sugar-cane may be found in the section of this book dealing with *Agricultural Production*. (See pages 273 to 278.)

18. Sugar Refineries.—The establishment of the sugar-refining industry considerably antedates the establishment of the sugar-milling industry, the raw material operated upon being originally brought chiefly from Mauritius and the East. In 1920-21 there were two sugar refineries in each of the States of Victoria and Queensland, and one in each of the States of New South Wales and South Australia. The returns for the individual States cannot be disclosed.

In the six refineries in the Commonwealth, an average number of 1,763 hands was employed during the year. The approximate value of land and buildings was £550,612, of plant and machinery, £1,190,717; and the total amount of wages paid during the year was £338,341. The value of all materials used in sugar refineries was £10,806,529, while the total output reached £11,255,457. The amount of crude sugar used was 256,917 tons, and of refined sugar produced 246,704 tons, valued at £11,145,807.

19. Breweries.—(i) *Details for each State.* The following table gives particulars of breweries in each State for the past year:—

BREWERIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920-21.	Tas. 1920.	C'wealth.
Number of breweries ..	17	16	10	8	12	4	67
Number of employees ..	1,122	1,054	543	376	523	134	3,752
Actual horse-power of engines employed ..	3,289	3,938	1,234	960	1,317	95	10,833
Approximate value of land and buildings ..	£ 714,155	391,385	169,354	100,111	182,572	61,450	1,619,027
Approximate value of plant and machinery ..	£ 924,181	441,470	195,428	112,855	158,437	50,585	1,882,956
Total amount of wages paid during year ..	£ 286,685	270,595	133,824	96,659	122,170	27,630	937,563
Value of fuel used ..	£ 66,848	68,165	19,487	18,282	18,108	4,245	195,135
Value of raw material worked up ..	£ 1,316,561	1,079,493	302,423	279,548	300,573	63,109	3,341,707
Total value of output ..	£ 2,515,224	2,098,720	1,545,430	492,481	689,527	231,438	7,572,820
Value added by processes of manufacture ..	£ 1,198,663	1,019,227	1,243,007	212,933	388,954	168,329	4,231,113

(a) Includes malting.

(ii) *Production and Materials Used.* The following table shews the quantity and value of ale and stout brewed and the quantity of raw materials used in each State during the year 1920-21:—

PRODUCTION AND MATERIALS USED IN BREWERIES, 1920-21.

Particulars.	N.S.W. 1920-21.	Victoria, 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tasmania. 1920.	C'wealth.
ALE AND STOUT BREWED.							
Quantity .. gallons	25,299,231	22,257,394	3,902,429	6,102,696	5,735,671	1,938,319	70,235,740
Value .. £	2,472,163	2,093,720	964,380	486,282	675,491	230,744	6,927,782
RAW MATERIALS USED.							
Malt .. bush.	811,385	753,260	263,278	172,208	176,063	76,234	2,252,428
Hops .. lbs.	817,493	736,580	349,180	193,707	202,356	110,303	2,409,619
Sugar .. cwt.	108,720	104,140	46,624	30,491	28,844	7,803	326,622

RAW MATERIALS USED PER 1,000 GALLONS OF ALE AND STOUT PRODUCED.

Malt .. bush.	32.07	33.84	29.57	23.22	30.70	39.33	32.07
Hops .. lbs.	32.31	33.09	39.22	31.74	35.28	56.91	34.31
Sugar .. cwt.	4.30	4.68	5.24	5.00	5.03	4.03	4.65

(a) Exclusive of excise duty.

(iii) *Development of Breweries, 1916 to 1920-21.* The following table shows the progress of this industry during the past five years :—

DEVELOPMENT OF BREWERIES, 1916 TO 1920-21.

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of breweries	86	77	72	68	68	67
Number of employees	3,179	3,191	3,268	3,355	3,710	3,752
Actual horse-power of engines used ..	8,882	8,955	9,602	9,922	18,091	10,833
Approx. value of land and buildings £	1,864,712	1,901,488	1,676,567	1,692,220	1,109,813	1,619,027
Approx. value of plant and machinery £	1,518,846	1,565,914	1,600,734	1,654,600	1,243,272	1,882,956
Total amount of wages paid £	560,004	594,687	632,076	668,579	831,779	937,563
Value of fuel used	87,375	104,629	120,381	128,650	160,609	195,135
Value of raw material worked up ..	1,548,615	1,637,568	1,959,232	2,215,487	2,700,601	2,341,707
Value of final output	3,872,044	3,952,647	4,741,744	5,184,649	6,631,409	7,572,820
Value added in process of manufacture £	2,323,429	2,315,079	2,782,512	2,969,162	3,870,808	4,231,113

The main feature in the history of the brewing industry, which was established at an early date in Australia, has been the change from the small local brewery in every township of moderate size to the large centralised city brewery. This, however, has not been so much in evidence during the period embraced in the above table, the reduction of the number of establishments during recent years being mainly due to several large amalgamations. The total value of output of breweries in the Commonwealth increased from £3,872,044 in 1916 to £7,572,820 in 1920-21, while the quantity of ale and stout brewed during the same period increased from 60,882,091 to 70,235,740 gallons. The average production per head of mean population likewise increased from 12.25 gallons per head for 1916 to 13.00 gallons for 1920-21.

20. *Distilleries.*—The subjoined table gives particulars of distilleries in four States. There are no distilleries in Western Australia or Tasmania.

DISTILLERIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of distilleries	4	10	3	20	..	..	37
Number of employees	41	145	44	140	..	..	370
Actual horse-power of engines employed ..	170	264	91	426	..	..	951
Approx. value of land and buildings £	20,215	107,710	13,098	61,764	..	..	202,787
Approx. value of plant and machinery £	68,295	67,760	26,200	63,171	..	..	225,426
Total amount of wages paid during year £	9,632	32,288	7,083	21,459	..	..	70,492
Value of fuel used	4,403	9,700	3,729	7,312	..	..	25,144
Value of raw materials worked up ..	55,602	160,501	20,488	199,866	..	..	436,457
Total value of output	87,797	245,944	66,257	269,307	..	..	669,305
Value added in process of manufacture £	52,195	85,443	45,769	69,441	..	..	232,848

The total quantity of rum distilled during the year was 61,152, of whisky 202,090, of brandy 237,746, of gin 52,804, of methylated spirits 985,493, and of other spirits, including rum distilled in Queensland separate particulars for which are not available, 1,946,178 proof gallons. The materials used comprised 483,397 cwt. of molasses, and 4,882,715 gallons of wine.

21. *Tobacco, Cigars, and Cigarettes.*—(i) *Details for each State.* During the year 1920-21 there were forty establishments in which the manufacture of tobacco, cigars, and cigarettes was carried on. There were no factories engaged in this industry in Tasmania.

TOBACCO, CIGAR, AND CIGARETTE FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S.A. 1920-21.	W.A. 1920.	Tas. 1920.	C'wealth.
Number of factories	16	16	3	2	3	..	40
Number of employees	2,394	1,986	61	39	45	..	4,525
Actual horse-power of engines employed ..	657	491	36	..	2	..	1,186
Approx. value of land and buildings £	291,604	185,610	a	a	2,928	..	6490,494
Approx. value of plant and machinery £	226,043	133,120	a	a	845	..	6369,267
Total amount of wages paid during year £	356,781	334,748	a	a	3,962	..	6706,218
Value of fuel used	11,697	6,162	a	a	23	..	618,201
Value of raw material worked up ..	3,403,517	1,650,326	a	a	8,142	..	55,091,272
Total value of output	4,240,746	2,401,618	a	a	14,746	..	66,709,298
Value added in process of manufacture £	837,229	751,292	a	a	6,604	..	61,618,026

(a) Not available for publication.

(b) Including Queensland and South Australia.

(ii) *Quantities of Goods Produced, and Tobacco Leaf Used.* The following table shews the quantity of goods produced in tobacco factories in each State, and the quantities of imported and Australian-grown leaf used:—

PRODUCTION OF TOBACCO FACTORIES AND QUANTITY OF LEAF USED, 1920-21.

Particulars.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth. b
QUANTITY (,000 OMITTED).							
Manufactured tobacco .. lbs.	6,724	6,443	}	a	a	..	{ 13,268
Cigars .. lbs.	147	378					
.. No.	12,345	35,550					
Cigarettes .. lbs.	5,073	251	..	..	..	..	5,324
.. No.	2,268,924	109,687	..	..	..	..	2,378,611

TOBACCO LEAF USED (,000 OMITTED).

Australian leaf .. lbs.	883	751	}	a	a	..	{ 1,739
Imported leaf .. lbs.	9,555	5,291					

(a) Not available for publication.

(b) Including particulars of Queensland, South Australia and Western Australia.

(iii) *Development of Industry.* This industry was among the first to be established in Australia. In 1861 New South Wales had eleven factories, producing 177,744 lbs. of manufactured tobacco; in the same year there was one factory in Victoria, but the quantity of tobacco manufactured is not available. The Australian market has for many years been largely supplied with local manufactures. The quantities imported into Australia during 1920-21 were—manufactured tobacco 857,842 lbs., cigars 126,690 lbs., and cigarettes 169,317 lbs., while the quantities manufactured in Australian factories were respectively 13,267,627 lbs., 543,739 lbs., and 5,324,307 lbs. The following tables shew the development of the tobacco manufacturing industry in the Commonwealth during recent years:—

DEVELOPMENT OF TOBACCO, CIGAR, AND CIGARETTE FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.a	1917.b	1918.	1918-19.	1919-20.	1920-21.
Number of factories ..	35	38	37	37	37	40
Number of employees ..	3,739	3,814	3,920	3,908	4,489	4,525
Actual horse-power of engines used ..	914	934	934	948	1,144	1,186
Approx. value of land and buildings £	412,068	424,252	413,167	420,124	432,247	490,494
Approx. value of plant and machinery £	253,953	260,372	265,150	270,953	313,619	369,267
Total amount of wages paid ..	c394,435	438,142	466,520	490,172	633,694	706,218
Value of fuel used ..	c9,720	13,523	12,347	13,147	16,200	18,201
Value of raw material worked up ..	c2,124,204	2,344,063	2,578,758	3,110,373	4,559,110	5,091,272
Value of final output ..	c3,223,433	3,543,704	3,694,246	4,306,140	6,466,649	6,709,298
Value added in process of manufacture £	c1,099,229	1,199,641	1,115,488	1,195,767	1,907,539	1,618,026

PRODUCTION.

Tobacco made .. 1,000 lbs.	10,306	d11,107	d11,011	d10,991	13,158	13,268
Cigars ..	d362	d398	d427	d441	552	544
Cigarettes ..	d3,351	d3,075	d3,301	d3,726	4,837	5,324
Leaf used ..	12,541	d13,166	d12,957	d13,351	16,137	16,636

(a) Including four condiment establishments in Western Australia. (b) Including one condiment and two malting establishments in Queensland, and excluding two cigar factories in South Australia. (c) Exclusive of two factories in South Australia. (d) Incomplete.

22. Woollen, Cotton, and Tweed Mills.—(i) *Details for each State.* The manufacture of woollens and tweeds was established in Australia at an early period in its history, and was under Government control, the first record in New South Wales dating back to 1801, when a few blankets were made by the convicts; the first record in Victoria was in 1867. The following table, which gives particulars of the mills in each State, shews that the industry is now well established:—

WOOLLEN, COTTON, AND TWEED MILLS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W.A. 1920.	Tas. 1920.	C'wealth.
Number of factories	9	17	2	2	..	4	34
Number of employees	1,650	3,342	321	244	..	226	5,783
Actual horse-power of engines employed	2,795	5,679	582	280	..	281	9,617
Approx. value of land and buildings £	222,474	462,845	a	a	..	27,300	b751,858
Approx. value of plant and machinery	£ 384,662	850,785	a	a	..	63,500	b1,378,903
Total amount of wages paid during year	£ 235,668	444,631	a	a	..	20,675	b762,131
Value of fuel used	£ 23,517	61,989	a	a	..	1,752	b93,691
Value of raw material worked up	£ 745,848	1,166,101	a	a	..	49,167	b2,0,0,892
Total value of output	£ 1,437,647	2,397,610	a	a	..	134,229	b4,241,964
Value added in process of manufacture	£ 691,799	1,231,409	a	a	..	85,062	b2,151,072

(a) Information not available for publication.

(b) Including Queensland and South Australia.

(ii) *Progress of Industry, 1916 to 1920-21.* The progress of woollen and tweed manufactures in the Commonwealth during the last five years is shewn in the following table:—

DEVELOPMENT OF WOOLLEN, COTTON, AND TWEED MILLS IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories	23	24	25	25	29	34
Number of employees	3,927	3,746	3,817	4,087	5,029	5,783
Actual horse-power of engines used	5,538	6,840	7,114	7,212	8,705	9,617
Approx. value of land and buildings £	319,273	339,511	355,931	434,735	626,822	751,858
Approx. value of plant and machinery £	553,671	570,871	573,902	721,418	1,192,913	1,378,903
Total amount of wages paid	£ 357,137	351,043	360,466	398,641	560,149	762,131
Value of fuel used	£ 40,283	43,732	49,339	50,818	75,722	93,691
Value of raw material worked up	£ 971,144	1,073,314	1,141,962	1,249,094	1,865,477	2,090,892
Value of final output	£ 1,888,115	1,940,304	2,024,343	2,330,253	3,290,511	4,241,964
Value added in process of manufacture £	916,971	866,990	882,381	1,081,159	1,425,034	2,151,072

(iii) *Quantity and Value of Production.* The production of the woollen mills of Australia consists chiefly of tweed cloths, flannels, and blankets, all of which have acquired a reputation for purity and durability. Detailed particulars for the several States are not available for publication. The total length of tweed and cloth manufactured in the Commonwealth during 1920-21 was 6,350,499 yards. In New South Wales 2,494,417 yards of tweed and cloth, and in Victoria 2,509,198 yards were manufactured. The production of flannel in the Commonwealth amounted to 5,686,294 yards, while blankets, shawls, and rugs to the number of 772,336 were manufactured.

No cotton spinning or weaving, or linen weaving is carried on in Australia. Cotton ginning has been carried on intermittently in the northern States, and the recent development in cotton growing has led to the establishment of modern ginning plants at Rockhampton and Brisbane.

23. **Boots and Shoes.**—(i) *Details for each State.* Among the manufactories of Australia the boot and shoe industry holds an important place both in respect to the employment afforded and the extent of its output. The following table shows the particulars of this industry for each State during 1920-21 :—

BOOT AND SHOE FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S.A. 1920-21.	W.A. 1920.	Tas. 1920.	C'wealth.
Number of factories	189	304	31	37	19	12	592
Number of employees	4,845	9,212	1,136	842	296	242	16,573
Actual horse-power of engines employed	1,520	2,498	282	269	100	77	4,746
Approx. value of land and buildings	£ 499,911	£ 395,270	£ 37,992	£ 69,532	£ 36,763	£ 18,873	£ 1,258,361
Approx. value of plant and machinery	£ 201,881	£ 332,040	£ 30,174	£ 34,275	£ 10,183	£ 8,168	£ 617,721
Total amount of wages paid during year	£ 637,980	£ 1,208,761	£ 147,566	£ 92,567	£ 34,673	£ 27,940	£ 2,194,586
Value of fuel used	£ 11,696	£ 24,563	£ 1,596	£ 1,946	£ 881	£ 390	£ 41,077
Value of raw material worked up	£ 1,557,225	£ 2,911,852	£ 350,983	£ 208,336	£ 111,803	£ 63,379	£ 5,036,627
Total value of output	£ 2,701,972	£ 4,964,462	£ 605,627	£ 332,290	£ 173,254	£ 117,806	£ 8,895,411
Value added in process of manufacture	£ 1,144,747	£ 2,052,610	£ 254,644	£ 123,910	£ 61,446	£ 49,427	£ 3,686,784

(ii) *Progress of Industry, 1916 to 1920-21.* The progress of the industry in the last five years is shown in the following table :—

DEVELOPMENT OF BOOT AND SHOE FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories	352	399	432	438	532	592
Number of employees	13,322	15,286	15,499	15,960	17,987	16,573
Actual horse-power of engines used	3,249	3,590	3,742	3,998	4,462	4,746
Approx. value of land and buildings	£ 692,673	£ 750,551	£ 790,573	£ 849,759	£ 1,017,437	£ 1,258,361
Approx. value of plant and machinery	£ 428,837	£ 447,389	£ 465,020	£ 475,983	£ 530,327	£ 617,721
Total amount of wages paid ..	£ 1,244,700	£ 1,574,623	£ 1,613,728	£ 1,792,001	£ 2,232,746	£ 2,194,586
Value of fuel used	£ 22,248	£ 31,131	£ 29,055	£ 31,852	£ 41,206	£ 41,077
Value of raw material worked up	£ 2,793,391	£ 3,784,338	£ 3,913,893	£ 4,451,458	£ 6,661,483	£ 5,208,627
Value of final output	£ 4,617,322	£ 6,143,048	£ 6,410,464	£ 7,120,164	£ 10,206,965	£ 8,895,411
Value added in process of manufacture	£ 1,823,931	£ 2,358,710	£ 2,496,571	£ 2,668,706	£ 3,545,482	£ 3,686,784

The above table furnishes evidence of substantial and consistent development in the manufacture of boots and shoes in the Commonwealth from 1916 to 1919-20. During this period the number of employees increased by 4,665, and the value of the final output was more than doubled, while the increase in the number of boots and shoes made amounted to 1,717,560 pairs. The figures for 1920-21, however, reveal a considerable drop in all the items of manufacture, and, though enhanced values tend to disguise the decrease, the output of boots and shoes was less than in 1916.

(iii) *Quantity and Value of Production.* The number and value of boots, shoes, and slippers made at factories in each State are shown in the following table :—

PRODUCTION OF BOOT AND SHOE FACTORIES, 1920-21.

Particulars.	N.S.W. 1920-21.	Vic. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
QUANTITY (,000 OMITTED).							
Boots and shoes pairs	3,232	5,536	703	464	202	168	10,305
Slippers pairs	609	471	28	83	b	..	1,141
Uppers a pairs	42	13	3	13	4	5	80
VALUE.							
Boots and shoes £	2,297,939	3,935,145	562,209	281,331	148,875	111,015	7,336,514
Slippers £	108,830	84,165	6,570	6,878	b	..	206,493
Uppers a £	16,188	5,092	2,038	5,718	1,875	1,755	32,666

(a) Made for other than factory use.

(b) Included with boots and uppers.

24. Clothing (Tailoring and Slop) Factories.—The importance of this industry in the several States and in the Commonwealth as a whole is shown in the following table :—

CLOTHING (TAILORING AND SLOP) FACTORIES, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories	419	485	132	139	63	34	1,272
Number of employees	9,524	9,195	3,226	2,221	1,104	533	25,803
Actual horse-power of engines employed	509	472	233	118	61	15	1,408
Approximate value of land and buildings £	1,326,032	718,575	298,647	215,923	123,935	70,059	2,753,171
Approximate value of plant and machinery £	97,195	82,485	39,748	23,978	14,019	5,642	263,067
Total amount of wages paid during year £	1,158,433	982,105	311,373	227,554	122,981	57,525	2,859,971
Value of fuel used £	18,043	17,537	5,387	5,202	2,235	638	44,042
Value of raw material worked up £	2,304,051	2,282,111	686,690	388,465	274,590	84,984	6,020,891
Total value of output £	4,077,569	3,960,514	1,272,091	726,333	467,742	175,670	10,679,919
Value added in process of manufacture £	1,773,518	1,678,403	585,401	337,868	193,152	90,686	4,659,028

The relatively high increases which have taken place in the prices of raw materials were mainly responsible for a slight decline in the tailoring and slop branch of the clothing industry during the past five years.

As will be seen from the following table, this industry dispensed with 2,429 hands, and 239 units of power since 1916. The total output shews an increase of £4,232,066, but this increase merely indicates the advance which has taken place in the price of clothing during recent years :—

DEVELOPMENT OF CLOTHING (TAILORING AND SLOP) FACTORIES IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917. ^a	1918.	1918-19.	1919-20.	1920-21.
Number of factories	1,274	1,248	1,205	1,206	1,219	1,272
Number of employees	28,232	26,799	25,188	25,013	26,190	25,803
Actual horse-power of engines used	1,647	1,426	1,379	1,313	1,287	1,408
Approx. value of land and buildings £	2,053,674	2,234,022	2,182,326	2,224,646	2,402,571	2,753,171
Approx. value of plant and machinery £	221,940	216,718	206,954	202,868	220,903	263,067
Total amount of wages paid £	1,889,195	1,941,667	1,954,356	2,007,826	2,556,112	2,859,971
Value of fuel used £	34,767	36,052	34,889	37,181	40,941	44,042
Value of raw material worked up £	3,403,019	3,356,572	3,759,152	4,451,166	5,566,172	6,020,891
Value of final output £	6,447,853	6,461,405	6,924,820	7,807,130	9,957,672	10,679,919
Value added in process of manufacture £	3,044,834	3,104,833	3,165,668	3,355,964	4,391,500	4,659,028

(a) Including two dyeworks and cleaning establishments in Western Australia.

25. Dressmaking and Millinery.—Particulars of dressmaking and millinery establishments are given in the following table :—

DRESSMAKING AND MILLINERY ESTABLISHMENTS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories	233	475	45	47	45	15	860
Number of employees	4,711	9,113	1,146	1,023	591	272	16,856
Actual horse-power of engines employed	181	384	63	11	29	5	673
Approximate value of land and buildings £	588,606	650,750	39,385	54,783	50,014	9,330	1,392,868
Approximate value of plant and machinery £	55,868	76,525	7,811	4,999	4,575	697	150,475
Total amount of wages paid during year £	397,688	739,104	79,658	65,588	50,055	18,503	1,350,596
Value of fuel used £	3,304	10,285	888	790	520	82	15,864
Value of raw material worked up £	812,903	1,654,045	92,590	110,140	90,688	21,676	2,782,042
Total value of output £	1,456,880	2,900,217	192,330	209,054	147,283	45,755	4,951,519
Value added by process of manufacture £	643,977	1,246,172	99,740	98,914	56,595	24,079	2,169,477

The development of dressmaking and millinery establishments in the Commonwealth during the past five years is shewn in the following table:—

DEVELOPMENT OF DRESSMAKING AND MILLINERY ESTABLISHMENTS IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of factories	890	932	929	876	851	860
Number of employees	16,383	18,211	18,575	17,683	17,954	16,856
Actual horse-power of engines used ..	509	602	648	623	636	673
Approximate value of land and buildings £	974,766	1,036,251	1,087,567	1,159,550	1,167,568	1,392,868
Approximate value of plant and machinery £	82,057	99,552	111,622	116,093	123,646	150,475
Total amount of wages paid £	749,377	873,269	986,440	1,044,263	1,237,811	1,350,596
Value of fuel used £	10,746	13,341	14,227	14,125	15,070	15,864
Value of raw material worked up £	1,266,755	1,595,495	1,884,886	2,051,177	2,685,382	2,782,042
Value of final output £	2,481,266	2,976,725	3,405,574	3,634,695	4,882,988	4,951,519
Value added in process of manufacture £	1,214,511	1,381,230	1,520,688	1,585,518	2,197,606	2,169,477

Despite the high prices, the dressmaking and millinery establishments in the Commonwealth continued to progress during the past five years.

The number of employees, the actual horse-power of engines used, and the capital invested have all shewn increases since 1916, while the amount of salaries and wages paid advanced from £749,377 to £1,350,596, and the value of the final output from £2,481,266 to £4,951,519.

26. Electrotyping, Stereotyping, Printing, and Binding.—The printing industry ranks high in importance among the manufactories of the Commonwealth. It affords employment for more than 20,000 employees, and pays over £4,000,000 in salaries and wages. During 1920-21 the total value of the output amounted to £13,845,574.

The following table gives particulars of these industries in each State for the year 1920-21:—

ELECTROTYPE, STEREOTYPE, PRINTING, AND BINDING ESTABLISHMENTS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories	425	405	132	75	70	25	1,132
Number of employees	8,547	8,271	2,894	1,415	1,137	789	23,053
Actual horse-power of engines employed	5,008	4,177	1,435	1,034	652	228	12,534
Approximate value of land and buildings £	1,814,041	1,024,235	540,551	303,020	236,373	57,201	3,976,321
Approximate value of plant and machinery £	1,513,574	1,092,690	341,590	209,136	178,842	56,212	3,392,044
Total amount of wages paid during year £	1,588,881	1,427,199	486,428	252,298	205,635	123,291	4,083,732
Value of fuel used £	40,053	39,796	28,739	8,951	6,502	2,616	126,657
Value of raw materials worked up £	2,619,199	2,563,751	484,147	475,364	274,874	108,746	6,526,081
Total value of output £	5,158,051	5,317,251	1,463,828	906,325	688,825	311,294	13,845,574
Value added in process of manufacture £	2,538,852	2,753,500	979,681	430,961	413,951	202,548	7,319,493

The development of electrotyping, stereotyping, printing, and binding in the Commonwealth since 1916 is shewn in the following table :—

DEVELOPMENT OF ELECTROTYPING, STEREOTYPING, PRINTING, AND BINDING ESTABLISHMENTS IN THE COMMONWEALTH, 1916 TO 1920-21.

Items.	1916.	1917.	1918.	1918-19.	1919-20.	1920-21.
Number of establishments ..	1,094	1,093	1,106	1,101	1,125	1,132
Number of employees ..	21,247	21,060	20,714	20,852.	22,149	23,053
Actual horse-power of engines used ..	10,950	11,169	11,086	11,444	12,022	12,534
Approximate value of land and buildings ..	£ 3,346,985	3,387,008	3,449,394	3,474,345	3,661,054	3,976,321
Approximate value of plant and machinery ..	£ 2,666,977	2,664,637	2,683,781	2,722,729	3,087,143	3,392,044
Total amount of wages paid ..	£ 2,582,539	2,676,220	2,712,472	2,861,412	3,327,499	4,083,732
Value of fuel used ..	£ 84,637	87,301	89,663	94,257	105,093	126,657
Value of raw materials worked up ..	£ 2,394,703	3,112,140	3,690,419	4,386,629	5,003,681	6,526,081
Value of final output ..	£ 6,849,373	7,775,300	8,537,815	9,381,799	10,906,244	13,845,574
Value added in process of manufacture ..	£ 4,454,670	4,663,160	4,847,396	4,995,170	5,902,563	7,319,493

The latter table furnishes evidence of the activities of the printing establishments during the last five years. Since 1916 the expansion in this industry has necessitated the employment of 1,806 additional workers and 1575 horse-power units, while the values of the raw materials and the final output have been more than doubled.

27. Coach and Wagon Building Works.—This industry forms the principal branch of manufacture in Class XI. (see § 1, 3 above). The subjoined table gives particulars of factories in this branch of industry in each State. The returns include establishments for the manufacture of wheels, spokes, etc.

COACH AND WAGON BUILDING WORKS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories ..	172	294	63	82	42	20	673
Number of employees ..	1,536	2,607	498	731	327	254	5,948
Actual horse-power of engines employed ..	984	884	262	502	166	85	2,883
Approximate value of land and buildings ..	£ 279,926	310,770	70,024	98,352	59,833	28,525	847,430
Approximate value of plant and machinery ..	£ 105,128	81,655	21,875	35,008	12,149	4,408	260,313
Total amount of wages paid during year ..	£ 232,975	381,333	61,752	102,251	45,822	21,994	846,127
Value of fuel used ..	£ 9,800	12,703	1,851	5,504	3,181	979	33,518
Value of raw material worked up ..	£ 294,539	474,958	79,403	133,927	62,334	29,673	1,074,834
Total value of output ..	£ 654,077	1,061,529	189,379	286,164	133,546	65,373	2,390,068
Value added in process of manufacture ..	£ 359,538	586,571	109,976	152,237	71,212	35,700	1,315,234

28. Furniture and Cabinet Making and Billiard Table Making.—These industries constitute the principal manufactures in Class XIII. (see § 1, 3 above). The following table gives particulars for each State :—

FACTORIES FOR FURNITURE AND CABINETMAKING AND BILLIARD TABLE MAKING, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories ..	213	301	82	48	36	9	689
Number of employees ..	3,162	2,997	1,281	941	522	365	9,268
Actual horse-power of engines employed ..	2,220	1,876	932	1,023	516	180	6,747
Approximate value of land and buildings ..	£ 525,539	417,645	139,632	100,968	84,245	15,425	1,283,454
Approximate value of plant and machinery ..	£ 148,232	109,520	51,198	39,862	26,643	7,600	383,056
Total amount of wages paid during year ..	£ 587,223	440,258	203,691	153,348	91,652	44,248	1,520,420
Value of fuel used ..	£ 12,154	11,943	5,252	3,722	2,338	608	36,017
Value of raw material used ..	£ 761,199	686,620	277,255	176,590	119,367	32,598	2,053,629
Total value of output ..	£ 1,560,182	1,372,723	593,398	402,652	230,302	104,858	4,273,115
Value added in process of manufacture ..	£ 798,983	686,103	316,143	226,062	119,935	72,260	2,219,486

29. Electric Light and Power Works.—Particulars of the electric light and power works of the Commonwealth are given in the subjoined table. In 1916 there were 245 establishments employing 3,079 hands, whose salaries and wages amounted to £559,170; in 1920-21 these had increased to 260 establishments, 4,044 hands, salaries and wages £935,895, while the value of output had increased during the five years from £2,673,568 to £4,066,617.

ELECTRIC LIGHT AND POWER WORKS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories	117	79	13	13	25	13	260
Number of employees.. ..	1,353	1,242	477	546	234	192	4,044
Actual horse-power of engines employed	111,591	54,189	27,392	24,877	28,361	20,599	267,009
Approximate value of land and buildings	£ 1,381,092	494,025	62,511	199,972	185,082	8,084	2,330,766
Approximate value of plant and machinery	£ 2,531,558	2,660,945	380,333	629,792	494,320	269,536	6,966,284
Total amount of wages paid during year	£ 327,157	283,309	103,453	122,883	55,063	44,030	935,895
Value of fuel used	£ 590,373	373,064	67,866	140,161	90,581	8,178	1,270,223
Total value of output	£ 1,697,763	1,131,331	444,754	404,612	236,819	151,338	4,066,617

30. Gas and Coke Works.—There are gas works in operation in nearly all the chief towns in the Commonwealth. In New South Wales there are fourteen and in Queensland two coke factories which are worked as separate industries. The subjoined table gives particulars of gas and coke works in each State for the year 1920-21 :—

GAS AND COKE WORKS, 1920-21.

Items.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
Number of factories	59	45	18	5	4	2	133
Number of employees.. ..	2,499	2,213	590	504	67	132	6,005
Actual horse-power of engines employed	6,897	1,865	387	707	42	77	9,975
Approximate value of land and buildings	£ 1,236,989	504,230	189,717	a	31,129	a	62,009,273
Approximate value of plant and machinery	£ 2,941,470	1,422,035	1,024,885	a	60,118	a	66,108,859
Total amount of wages paid during year	£ 645,054	576,515	133,892	a	15,946	a	61,504,509
Value of fuel used	£ 116,588	5,644	9,898	a	5,131	a	6 160,360
Value of raw material used	£ 1,585,367	658,992	136,575	a	35,076	a	62,585,357
Total value of output	£ 3,846,050	1,608,999	433,307	a	82,789	a	65,945,238
Value added in process of manu- facture	£ 1,760,683	950,007	296,732	a	47,713	a	63,359,881

(a) Information not available for publication.

(b) Including South Australia and Tasmania.

The following table gives particulars regarding the quantity and value of the production of gas and coke works in each State during the year 1920-21 :—

PRODUCTION OF GAS AND COKE WORKS, 1920-21.

Particulars.	N.S.W. 1920-21.	Victoria. 1920-21.	Q'land. 1920.	S. Aust. 1920-21.	W. Aust. 1920.	Tas. 1920.	C'wealth.
QUANTITY.							
Gas .. 1,000 cub. ft.	9,844,437	4,499,088	1,153,240	a	194,203	a	616,757,216
Coke tons	935,138	216,771	67,778	a	6,998	a	6 1,278,939
VALUE.							
Gas £	1,692,249	1,237,249	356,062	a	65,381	a	6 3,693,129
Coke £	1,201,761	200,000	62,287	a	10,450	a	6 1,554,724

COAL USED.

Coal tons	1,445,204	339,250	119,544	a	13,894	a	6 1,998,269
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(a) Not available for publication.

(b) Including South Australia and Tasmania.

SECTION XIV.

WATER CONSERVATION AND IRRIGATION.

§ 1. Artesian Water.

1. *General.*—In every country in which droughts are recurrent, there are few problems the solution of which is of greater importance than that of an adequate system of water conservation. Much has been done in the Commonwealth so far as the supply of water to centres of population is concerned, and a description of several of the metropolitan water works will be found herein, viz., in the section dealing with *Local Government*. In May, 1912, an Interstate Conference on artesian water was held in Sydney, at which it was agreed that combined Governmental action should be taken with reference to delimitation of the artesian basin, hydrographic survey, analyses and utilisation of artesian water, etc. (See map on page 439.)

(i) *The Great Australian Artesian Basin.* In speaking of the "Great Australian Artesian Basin," the area is understood which includes (a) considerably more than one-half of Queensland, taking in practically all that State lying west of the Great Dividing Range, with the exception of an area in the north-west contiguous to the Northern Territory; (b) a considerable strip of New South Wales along its northern boundary and west of the Great Dividing Range; and (c) the north-eastern part of South Australia proper, together with the extreme south-eastern corner of the Northern Territory. This basin (shewn approximately by the map on page 439) is said to be the largest yet discovered, and measures about 569,000 square miles, of which 376,000 square miles are in Queensland, 90,000 square miles in South Australia, 83,000 square miles in New South Wales, and 20,000 square miles in the Northern Territory. The area of the intake beds is estimated at 60,010 square miles, viz., 50,000 square miles in Queensland and 10,010 square miles in New South Wales. A description of the basin and its geological formation will be found in previous issues of the Year Book (see No. 6, p. 569).

(ii) *The Western Australian Basins.* The Western Australian Basins fall naturally within five distinct groups, viz., the Eucla Basin, in the extreme south-east of the State, extending well into South Australia along the shores of the Great Australian Bight; the Coastal Plain Basin, west of the Darling Range; the North-West Basin, between the Murchison and Ashburton Rivers; the Gulf Basin, between Cambridge Gulf and Queen's Channel; and the Desert Basin, between the De Grey and Fitzroy Rivers. The boring operations in these basins are referred to hereinafter (see page 441.)

The Recent and Tertiary strata which enter Western Australia at its eastern border, and which have a prevailing dip towards the Great Australian Bight, form the Eucla artesian water area. But where boring operations have been undertaken, the water has been found to be salt or brackish, and there are other conditions affecting the supply, such as local variations in the thickness of the beds, their relative porosity, and the unevenness of the floor upon which they rest, which, so far, have not been examined with sufficient thoroughness to enable many particulars to be given in regard to this basin.

In the Coastal Plain Basin to the west of the Darling Ranges artesian boring has, on the other hand, been carried on successfully for many years.

(iii) *The Murray River Basin.* The Murray River basin extends over south-western New South Wales, north-western Victoria, and south-eastern South Australia. It is bounded on the west by the azoic and palæozoic rocks of the Mount Lofty and other ranges, extending northwards from near the mouth of the Murray to the Barrier Ranges, and on the east and north-east by the ranges of Victoria and New South Wales. This tertiary water-basin is occupied by a succession of sedimentary formations, both porous and impervious. It is of interest to note that the waters of the Murray River are partly supplied by influx from the water-bearing beds of this basin; this is proved by the fact that, at low water, springs are observed at certain places flowing into it from beneath the limestone cliffs from Pyap Bend downwards. Similar springs exist along the courses of other branches of the River Murray system, where they cut through the tertiary formation. On the Victorian side several bores have been put down, and water has been struck at various levels.

(iv) *Plutonic or Meteoric Waters.* In previous Year Books will be found a statement of the theory of Professor Gregory* as to the origin of the water in the Australian artesian basin, together with the objections held thereto by a former Government Geologist of New South Wales.† (See Year Book No. 6, p. 570.)

(v) *Particulars of Artesian and Sub-artesian Bores.* The following table gives particulars of artesian and sub-artesian bores in each State and in the Northern Territory:—

COMMONWEALTH AND STATES.(a)—PARTICULARS OF ARTESIAN AND SUB-ARTESIAN BORES, 1920-21.

Particulars.	N.S.W.	Victoria. c	Q'land.	S. Aust.c	W. Aust.	N. Ter.	Total. c
Bores existing .. No.	504	314	3,874	146	173	159	5,170
Total depth bored .. feet	837,502	87,361	3,475,062	115,229	157,182	47,158	4,719,494
Daily flow .. ,000 gals.	83,210	b	318,300	b	52,452	b	b
Depth at which artesian water was struck—							
Maximum .. feet	4,207	700	6,000	4,850	c2,275	b	6,000
Minimum .. feet	70	150	10	55	c39	b	10
Temperature of flow—							
Maximum .. °Fahr.	140	b	210	208	c140	b	210
Minimum .. °Fahr.	76	b	81	82	c76	b	76

(a) There are no artesian bores in Tasmania. (b) Not available. (c) Government bores only.

2. New South Wales.—(i) *Artesian Water Supply.* The New South Wales portion of the great Australian basin, comprising approximately 70,000 square miles, is situated in the north-western portion of the State. Artesian boring in New South Wales dates from 1879, when a private bore was put down on the Kallara pastoral holding, between Bourke and Wilcannia. The first Government bore was that at Goonery, on the Bourke-Wanaaring road, completed in 1884.

The following statement shews the extent of the work which has been successfully effected by the Government and by private owners up to 30th June, 1921:—

NEW SOUTH WALES ARTESIAN BORES, 1921.

Bores.	Flowing.	Pumping.	Total.	Total Depth.
For Public Watering-places, Artesian Wells, etc. ..	123	37	160	330,595
For Country Towns Water Supply ..	2	1	3	4,354
For Improvement Leases ..	34	3	37	58,412
Total Government Bores ..	159	41	200	393,361
Private Bores ..	222	82	304	444,141

The average depth is 1,967 feet in the case of Government bores, and of private bores 1,461 feet, and it ranges from 89 to 4,338 feet. The two deepest wells in New South Wales are those at Boronga, in the County of Stapylton, with a depth of 4,338 feet and a present outflow of 924,990 gallons; and at Dolgelly, in the Parish of Carennaga, in County

* See J. W. Gregory, F.R.S., D.Sc.: "The Dead Heart of Australia," London, John Murray, 1906; "The Flowing Wells of Central Australia," Geogr. Journ., July and August, 1911.

† E. F. Pittman, A.R.S.M., formerly Government Geologist of New South Wales: "Problems of the Artesian Water Supply of Australia, with special reference to Professor Gregory's Theory." (Clarke Memorial Lecture, delivered before the Royal Society of New South Wales, 31st October, 1907); "The Great Australian Artesian Basin," Sydney, 1914; "The Composition and Porosity of the Intake Beds of the Great Australian Artesian Basin," Sydney, 1915.

Stapylton, with a depth of 4,086 feet, and a present discharge of 534,406 gallons per day. The largest flow at the present time is that at the Wirrah bore, in the County of Benarba, which yields 1,079,776 gallons a day, and has a depth of 3,578 feet.

Of the 552 bores which have been sunk, 381 are flowing, and give an aggregate discharge of 85,209,550 gallons per day; 123 bores give a pumping supply, the balance of 48 being failures; the total depth bored represents 898,444 feet.

The flow from 78 bores is utilised for supplying water for stock on holdings served in connexion with Bore Water Trusts or Artesian Districts under the Water Act of 1912. The total flow from these bores amounts to 34,543,740 gallons per day, watering an area of 4,556,024 acres by means of 2,820 miles of distributing channels. The average rating by the Bore Trusts to repay the capital cost with 4 per cent. interest in twenty-eight years, is 1.5d. per acre, including the cost of maintenance and administration.

In the majority of cases the remaining bores are used by pastoralists for stock watering purposes only, but in a few instances the supply is utilised in connexion with country towns.

The watering of the north-western country by means of bore water has largely increased the carrying capacity of the land; and, what is of perhaps greater importance, it has made comparatively small pastoral holdings practicable in country previously confined almost entirely to the operations of companies holding immense areas.

It having been determined that multiplicity of bores is the chief factor governing the annual decrease in bore flows, and also that limiting the discharge from a bore will prolong its flowing life, action has been taken to prevent any waste by controlling the bore flow to actual requirements. It is confidently anticipated that this action will materially reduce the rate of decrease in the future.

(ii) *Shallow Boring.* The scheme described in Official Year Book No. 9 (p. 520) for assisting settlers by sinking shallow bores has met with considerable success.

Operations commenced with one plant only, but the number has been increased gradually until 28 plants are at work.

A large number of applications from settlers wishing to take advantage of the liberal conditions offered under the regulations has been received, and further applications are coming to hand daily, consequently the plants now in use will probably be insufficient to cope with the demand. Out of 726 bores put in hand up to 30th June, 1921, 132 have proved failures.

There can be no question that the added value of the holdings represented by the bores already put down is considerably in excess of their cost, and as fairly conclusive evidence of this, it might be stated that in several instances the Government Savings Bank has, on completion of a bore, made the settler a sufficient advance to enable him to pay the total cost in cash.

In addition to the work carried out under the Shallow Boring Regulations outlined above, shallow boring plants have sunk 22 bores in the Pilliga scrub and on Crown lands for the Lands and Forestry Departments.

The fact that of the bores put down in the Pilliga scrub, 52 are giving a flowing supply, adds much to their value, and is of special interest as indicating the possibility of tapping a small and hitherto unknown artesian basin.

(iii) *Private Artesian Bores.* Much has been done in the way of artesian boring by private enterprise. As far as can be ascertained, 323 private bores have been undertaken in New South Wales, of which 24 were failures. The yield of the flowing bores is estimated at 37.8 million gallons per day. No data are available regarding the pumping bores.

3. *Victoria.*—Victoria lies altogether outside the Great Australian Artesian Basin, and as water is generally available from surface or shallow underground supplies, there has not been much occasion for artesian boring. As early as 1880, however, an artesian well was bored at Sale, which gave a large supply of water of fair quality before it failed through corrosion of the casing. In 1905 a new bore was put down, which at a depth of 277 feet yielded sufficient water to fill Lake Guthridge, a local depression. But as the water was impure, and contained an excess of sulphuretted hydrogen, boring operations

were continued to 520 feet, when the lowering of the casing shut off the supply of water. A further bore was then put down at some distance from the first, and this, at a depth of 238 feet, yielded a fresh and clear water supply of about 145,000 gallons per day. Corrosion troubles occurred here also, and at the end of 1912 another bore was put down to a depth of 235 feet, artesian flows being struck at 187 feet and 235 feet. Towards the end of 1915 a flow of 200,000 gallons per day was struck at a depth of 125 feet on the Powerscourt Estate, near Maffra. Other bores are being put down in the locality.

Largely due to the failure of surface supplies in the drought of 1878 to 1886, no less than 499 bores were, before the end of 1888, put down by shire councils aided by the Government. The total depth bored was 40,000 feet; fresh water was struck in 78 instances; 47 yielded brackish but usable water; 229 were salt, while the balance were dry. The bores covered practically the whole of the settled portions of Northern and North-western Victoria and parts of Gippsland.

In the late eighties a number of bores were put down in the north-western part of the State, varying from 200 to over 2,000 feet in depth, but without any notable success. In 1897 a Board reported on boring for artesian water supply in the Mallee country, but this report was adverse, except as regards the extreme northern portion thereof. In 1906 eight bores were put down on the Overnewton Estate, Maribyrnong, to depths varying from 147 to 272 feet; small supplies of good and medium water for stock purposes were obtained, but only one of the wells yielded water fit for domestic purposes. In 1908 boring was commenced in the Mallee country near the border east of Pinnaroo in South Australia, and a line of bores from the Border to Kow Plains has proved the existence of a large sheet of underground water. Altogether, 92 bores have been successful in striking fresh water, and their depths vary from 155 to 752 feet, the water rising to within from 207 to 6 feet of the surface. In three instances the bores flow, the water rising from 4 to 17 feet above the surface. The fresh water extends nearly as far east as the 142nd meridian, and its northern limit is approximately the 35th parallel.

At 30th June, 1921, the number of existing bores in use in the north-western portion of Victoria was 314, from which supplies are obtained by pumping. The total depth bored amounted to 87,361 feet, while the maximum and minimum depths at which water was struck were 700 and 150 feet respectively. The figures include also about 206 existing private bores, with a total depth of about 41,800 feet.

4. **Queensland.**—A return relating to the 30th June, 1921, classifies the Queensland artesian bores under the following headings:—

QUEENSLAND ARTESIAN BORES, 30th JUNE, 1921.

Sunk by—				Artesian Flows.	Sub- Artesian or Pumped Supplies.	In Progress, Abandoned, or Uncertain.	Total.
Government .. .. .	..	..	..	66	89	143	298
Local governing authorities .. .. .	..	..	..	16	22	22	60
Private owners .. .. .	..	..	..	1,172	1,417	927	3,516
Total				1,254	1,528	1,092	3,874

The estimated yield of water from 1,254 flowing bores on 30th June, 1921, was 300,140,000 gallons per diem. The deepest well was about 40 miles west of Blackall, lying east of the Barcoo River; this had a depth of 7,009 feet, and was stated to yield 70,000 gallons daily. Further sinking is in progress. The flow is, of course, a comparatively small one, many wells yielding, when uncontrolled, from one to three million gallons a day. The waters of many of the wells have been analysed, and some found suitable for wool-scouring only, others are suitable for watering stock but not for irrigation. owing to

the presence of alkali; others again serve for both stock and irrigation, while some, such as those containing sulphuretted hydrogen, are not of any use. Water fit for stock may generally be said to be "safe" for domestic purposes in spite of its slightly mineral taste. The wells yielding the mineral waters known as "Helidon Spa," "Boonah Spa," and "Junot Spa," which are much in use in Queensland and New South Wales, are shallow wells from 60 to 200 feet in depth.

The following table shews particulars as to Queensland bores at the end of June, 1921 :—

QUEENSLAND ARTESIAN AND SUB-ARTESIAN BORES, 30th JUNE, 1921.

Particulars.				State and Local Authorities.	Private.	Total.
Bores existing	..	..	No.	358	3,516	3,874
Total depth bored	..	..	feet	285,968	3,189,094	3,475,062
Daily flow	..	..	gallons	36,500,000	281,800,000	318,300,000
Depth at which artesian water was struck—						
Maximum	..	..	feet	4,256	6,000	..
Minimum	..	..	"	354	10	..
Temperature of flow—						
Maximum	..	..	°Fahr.	198	210	..
Minimum	..	..	°Fahr.	85	81	..

5. **South Australia.**—There were in South Australia 146 Government bores existing at 30th June, 1921, of which 36 were artesian and 110 sub-artesian. Of these, 108 were under 1,000 feet in depth; 24 from 1,000 to 2,000 feet; 6 from 2,000 to 3,000 feet; 5 from 3,000 to 4,000 feet; and 3 over 4,000 feet. The deepest flowing bore was at Patchawarra, on the Farina to Haddon, *via* Innamincka route, measuring 5,458 feet, but now yielding only 50 gallons per day. The maximum flow, *viz.*, 1,250,000 gallons, is obtained at Coonie Creek, east of Lake Frome.

The following table shews particulars as to South Australian bores at 30th June, 1921 :—

SOUTH AUSTRALIAN BORES, 1921.

Particulars.						Artesian and Sub-artesian.
Bores existing	..	..	..	..	..	146
Total depth bored	..	..	..	..	feet	115,229
Daily flow	..	..	..	..	gallons	(a)
Depth at which water was struck—						
Maximum	..	..	..	..	feet	4,850
Minimum	..	..	..	..	feet	55
Temperature of flow—						
Maximum	..	..	..	..	°Fahr.	208
Minimum	..	..	..	..	°Fahr.	82
Total cost of construction of bores up to 30th June, 1921						£329,339
Expenditure during year on boring operations						£8,704

(a) Not available.

(i) *Bores between the Murray and the Eastern Boundary of the State.* The sinking of bores across the Ninety-mile Desert between the Murray and the Victorian boundary was commenced in 1886 at Coonalpyn; with the exception, however, of salt water at 55 feet, no success was met with. Ki Ki bore was sunk in 1887, and at 361 feet a good supply of water fit for stock was struck. Tintinnarra bore was sunk in 1887; it was artesian when first tapped. The water was found to be fit for locomotive engines and is still used for that purpose. The bore at Emu Flat was also sunk in 1887. In 1904 a

bore was sunk at Cotton, and numerous successful bores have since been put down by the Public Works Department, and subsequently by residents of the district. The water rises to a distance from the surface of from 15 to 320 feet, and the maximum quantity obtained per diem is 48,000 gallons at the Gosden bore. Several wells, ranging in depth from 55 to 221 feet, have also been sunk in this district. The latest Government bores are Kumara in the Hundred of Kingsford, and Perponda in the Hundred of Vincent. The former has a depth of 240 feet, and the water, which is in large supply, rises to within about 96 feet of the surface. The latter is 300 feet in depth, and the water rises to within 56 feet of the surface. The water is fresh, containing about $\frac{3}{4}$ oz. salts and other solid matter per gallon.

(ii) *Bores West of Oodnadatta.* A series of bores has been sunk, beginning with Breaden bore, 20 miles west of Oodnadatta, which was put down in 1911. The others since put down in this district are at Gypsum, Imbitcha, Mirackina, Raspberry Creek, Appreentina, Wintinna, and Marla. Of these, the only artesian supply is at Raspberry Creek, where 1,000,000 gallons per day of good water are obtained. The depths of these bores range from 280 feet at Mirackina to 1,122 feet at Breaden, and the water from all of them is good.

(iii) *Other New Bores.* The Moutecollina Bore, on the Innamincka Track, has been completed, being sunk to a depth of 2,550 feet, and a splendid supply of good artesian water was struck at 2,450 feet. No. 2 bore, in the Stuart's Range Opal Fields, was sunk to a depth of 1,000 feet, and a useful supply of sub-artesian water obtained. Good water has also been struck in a new bore known as Glenmanyie, which is being put down on Pastoral Lease 1286.

(iv) *Eyre Peninsula.* From time to time bores have been sunk on Eyre Peninsula but with little success. In some instances, stock water ($1\frac{1}{2}$ ozs. salts to the gallon) was obtained, but this only occurred on the Nullarbor plains. In all other cases the water struck was far too salt to be used. Consequently the supply of water is now principally from catchments. A number of reservoirs have been constructed to hold from 1,000,000 to 9,000,000 gallons each. Many underground tanks have been built to contain from 40,000 up to 500,000 gallons each.

6. *Western Australia.*—The work by which the Government of Western Australia provides a permanent supply of water to Kalgoorlie, Boulder and adjacent districts on the eastern goldfields comes properly under the heading of "Water Supply Works." A description of this undertaking is fully given in previous issues of the Year Book. (See No. 6, p. 576.)

The statistics in connexion with the Goldfields Water Supply undertaking and the Mines Water Supplies will be found in the section of this book dealing with *Local Government*.

The following table shews particulars as to Western Australian artesian bores at 30th June, 1921 :—

WESTERN AUSTRALIAN ARTESIAN BORES, 30th JUNE, 1921.

Particulars.	State.	Private.	Total.
Bores existing	94	79	173
Total depth feet	91,570	65,612	157,182
Daily flow gallons	23,700,300	28,751,500	52,451,800
Depth at which artesian water was struck—			
Maximum feet	2,275	(a)	..
Minimum feet	39	(a)	..
Temperature of flow—			
Maximum °Fahr.	140	(a)	..
Minimum °Fahr.	76	(a)	..

(a) Not available.

To 30th June, 1921, the total number of Government bores was 94, and there were approximately 79 private bores recorded in addition.

MAP SHEWING THE POSITION AND EXTENT OF THE "AUSTRALIAN ARTESIAN BASINS."



This map was prepared by the Interstate Conference on Artesian Water, held in Sydney during May 1912. It contains the latest facts relative to the various artesian basins of the Australian continent. Of these basins the most important is the Great Australian Basin, which is about 569,000 square miles in extent, viz.:—About 376,000 square miles in Queensland, 90,000 square miles in South Australia, 83,000 square miles in New South Wales, and 20,000 square miles in the Northern Territory. The Murray River Basin extends over South-Western New South Wales, North-Western Victoria, and South-Eastern South Australia. The Western Australian Basins fall naturally within five groups, viz.:—The Eucla Basin, the Coastal Plains Basin, the North-West Basin, the Desert Basin, and the Gulf Basin. (See also pages 433 to 441.)

The boring operations which have been carried out in the artesian basins along the West Australian Coast are as follows :—

(i) *The Coastal Plain Basin or Perth Area*, which, generally speaking, extends from Cape Leeuwin to Dongarra, and from which the Metropolitan Water Supply is largely drawn, yields a supply of water mostly fresh and suitable for domestic purposes, though towards the north it becomes brackish and is only suitable for stock.

There are 40 bores in the Metropolitan area, several of which have been put down to augment the hills supply and the domestic supply of the suburbs, and Fremantle is largely dependent upon this source.

(ii) *The North-west Basin or Carnarvon Area* may be said to extend from Gantheaume Bay in the south to Onslow in the north, and embraces a very large tract of ideal sheep country.

Many private bores have been put down on sites which permit of the gravitation of the water for miles, and, by this means, a very considerable area has been put under stock. Some remarkable flows have been obtained and, in one case, at a depth of 300 feet a flow reputed to be 3,000,000 gallons per day was struck, the water being suitable for stock. In all, about 61 bores have been put down.

(iii) *The Gulf Basin or Broome Area*. So far very little development work has been done. Artesian bores have been put down in the town site, and the domestic requirements of the town are entirely supplied from this source. The area extends from Condon in the south-west to the Meda River beyond Derby in the north, and for a considerable distance inland. So far only 7 bores have been sunk, 3 being at Broome, 2 at Derby, and 2 on the telegraph line on the road between Derby and Hall's Creek, about 67 and 80 miles inland.

(iv) *Eucla Area*. This area extends from Eucla, on the South Australian border, to west of Israelite Bay. So far, beyond the bores put down on the route of the Trans-Australian Railway, very little has been done in proving the resources of this area. In 1902 the first bore was sunk, about 35 miles north of Madura, and sub-artesian water struck at 430 feet, at an elevation of 400 feet above sea level. Following upon this, a deep bore was put down at Madura, below the cliff and nearer the coast, when an artesian supply of stock water was obtained at a depth of 2,041 feet, yielding 5,700 gallons per day. This was followed later with about 20 bores along the survey line of the railway; which runs east and west about 90 miles inland. These bores were put in at intervals between the 205 mile peg and the South Australian border, and ranged in depth between 323 and 1,344 feet. In most instances only stock water was struck at depths varying between 300 and 1,300 feet, and the largest estimated supply was about 10,000 gallons per day.

7. **Northern Territory.**—In the Northern Territory, bores to the number of 159 were put down up to 30th June, 1921, 51 belonging to the Commonwealth Government. This number does not include bores put down by hand-boring plants for test purposes. One bore is artesian, and 158 give a pumping supply. The cost of construction and equipment of the Government bores exceeded £20,000. The total depth bored in State and private bores was 47,158 feet. Maximum depths were 1,474 feet in State, and 1,760 feet in private bores, and minimum depths were 110 feet and 60 feet respectively.

§ 2. Irrigation Schemes.

1. **General.**—Australia's first experiments in irrigation were made with the object of bringing under cultivation areas in which an inadequate rainfall rendered agricultural and even pastoral occupations precarious and intermittent, and, although these original settlements have for the most part proved fairly successful, most of the States, instead of promoting new settlement in unoccupied regions, are adopting the policy of making existing settlement closer, by repurchasing big estates and large farms, subdividing them into holdings of suitable sizes for cultivation, and selling the land upon easy terms of payment. It is in connexion with this Closer Settlement policy that the special value of irrigation is recognised.

2. *New South Wales.*—(i) *Water Conservation and Irrigation Works.* The provision of an adequate water supply for other than domestic purposes is essential to the well-being of all primary industries, and particularly in a country liable to dry seasons which affect extensive areas. A large portion of the State receives an adequate and regular rainfall, but there is a considerable extent of country where all the factors exist which are requisite for success in agricultural pursuits excepting only a constant water supply. The recognition of the fact that the area suitable for cultivation might be extended largely by a comprehensive system of water conservation and irrigation has induced the Government to undertake various detached works and schemes, which will constitute portion of the ultimate irrigation system necessary to serve the whole State.

The system, and the works necessary to its maintenance and development, within the State of New South Wales, are under the control of the Water Conservation and Irrigation Commission, which consists of the Minister for Agriculture for the time being as Chairman, and two other Commissioners. The works controlled by the Commission include the great Murrumbidgee Irrigation Scheme, the small irrigation settlements at Hay and Wentworth, natural works of water conservation, shallow boring for settlers, and water trusts and artesian bore trusts operating under the Water Act. The Commission has control also of storages and diversions of water by private persons for purposes of conservation and irrigation.

(ii) *Murrumbidgee Irrigation Scheme.* The main features of the scheme include a storage dam across the Murrumbidgee to retain the floodwaters, which will be released for use lower down the river during the dry summer months; a movable diversion weir, about 240 miles below the dam, to turn the required amount of water from the river into the main canal; a main canal, leaving the river near the weir; four main branch canals; and a series of subsidiary canals and distributing channels through the area to be irrigated; bridges, checks, regulators and other structures throughout the entire system, and meters for measuring the volume allowed to each farm. Towns and villages, also roadways to serve each farm, and a general surface drainage system, are also included in this scheme.

The site of the storage dam is at Burrinjuck, three miles below the confluence of the Murrumbidgee and Goodradigbee Rivers. The dam wall is being constructed of cyclopean masonry and concrete, and when completed will have a maximum height of 240 feet, and will impound the waters in a lake covering 12,740 acres. Ample water is being stored to meet the requirements of the farms already occupied, and to allow of water being drawn off during the summer months to augment the natural flow of the river for the benefit of riparian holders down stream. The reservoir will have a capacity of 33,612 million cubic feet, or 771,641 acre feet, the catchment area being about 5,000 square miles, drained by three principal streams—the Murrumbidgee, Goodradigbee, and Yass Rivers—up which the water will be backed, when the dam is full, to distances of 41 miles, 15 miles, and 22 miles respectively. Direct communication between Burrinjuck and the Main Southern railway has been provided by the construction of a 2-ft. gauge line from Goondah, a distance of 26 miles.

The diversion weir is situated at Berembad, about 40 miles by river and 19 miles in a direct line above the town of Narrandera. It is founded on a solid granite bar extending across the river, and has a length over all of 270 feet between abutments, divided into a sluiceway 40 feet wide in the clear; a lock chamber, 40 feet wide, capable of taking barges up to 100 feet in length; and 55 channoiné wickets, manipulated from a punt moored up-stream. During the winter freshets the wickets are lowered, thus affording a clear water-way in the river channel.

The main canal branches from the river just above the weir, and, after passing through Narrandera, continues in a north-westerly direction, skirting the hills abutting on the plains. A scheme for enlarging the main canal to double its present capacity (1,000 cubic feet per second) has been approved by Parliament and the work is now in progress. The principal canals are the Gogeldrie canal, which off-takes at 47 miles from Berembad, and runs approximately parallel to the Narrandera-Hay railway through the Yanco area; the Mirrool branch canal, which off-takes at 78 miles from Berembad and supplies portion of the Mirrool area; the Northern branch canal, which off-takes at 76 miles from Berembad; and the Lake View branch canal, which off-takes at 93 miles from Berembad.

The irrigation area is situated on the northern side of the Murrumbidgee River, where it is anticipated that there will ultimately be upwards of 200,000 acres under irrigation in blocks devoted to fruit and vegetable growing, dairying, stock-raising, etc. With the aid of irrigation the soil and climate of these areas are suitable for the production of apricots, peaches, nectarines, prunes, pears, plums, almonds, melons, cantaloups, and citrus fruits, also wine and table grapes, raisins, sultanas, figs, olives, and most varieties of vegetables and fodder crops. Dairying and pig-raising are already being successfully undertaken by settlers in the areas, and the canning and drying of fruit is becoming an industry of large dimensions.

The first area made available for settlement was in the vicinity of Yanco siding on the Hay railway line. The second, which is situated on the northern side of the Mirrool Creek, is served by the branch railway from Cootamundra, which now terminates at Griffith, but which it is proposed to extend to Hillston. A railway connecting these two lines and running from Yanco to Griffith railway stations, right through the irrigation areas, has recently been completed and opened for traffic.

Further areas are being thrown open for settlement as the construction works are completed. Farms varying in size from 2 acres to over 200 acres have been made available. The "water right" or number of "acre feet" of water allotted to each holding is specified when the holding is notified as available for application. An "acre foot" of water means such a quantity, 12 inches deep, as would cover an area of one acre. The cost of water supplied by gravitation ranges from five shillings to ten shillings per acre foot. The average horticultural farm is from 15 to 25 acres, but to suit the requirements of dairymen and other stock farmers, blocks of larger areas have been made available. These comprise non-irrigable or "dry" areas, in addition to the irrigable portion. Some of these larger farms are 200 acres or upwards in extent, but the maximum water right allowed in respect of these larger farms is generally 80 acre feet. Additional water may be obtained, if available, by arrangement.

The conditions for the disposal of irrigation blocks are contained in the Crown Lands Consolidation Act of 1913, and Amending Acts. Any person of or over the age of sixteen years, if a male, or eighteen years if a female (other than a married woman not living apart from her husband under decree of judicial separation), or two or more such persons jointly, may apply for a farm or block. A married woman, not judicially separated from her husband, may, however, if she be not subject to any other statutory disqualification, (a) acquire by way of transfer, with the consent of the Minister, out of her own moneys, a lease within an irrigation area; (b) continue to hold a lease which she held before her marriage; (c) hold a lease which may devolve on her by will or intestacy of a deceased person. The tenure is perpetual leasehold.

The improvement conditions attached to the farm holdings include fencing, planting trees for windbreaks, construction of dwellings, and destruction of noxious plants.

Subject to such conditions as to security and terms of repayment as the Commission may think fit to impose, settlers may obtain an advance, or have payment of amounts owing suspended. Such advances are limited to the total amount of funds made available by Parliament for this purpose. The amount of assistance now being granted to settlers, by the Commission, is not as great as formerly, since the Government Savings Bank Commissioners now have statutory power to make loans upon mortgage of irrigation farm leases, and many settlers have already obtained help from the Bank. The Commission has financially assisted the co-operative organisations formed by settlers in connection with the handling and marketing of their produce, reference to which is made later. Concessions in railway fares and freights are made on New South Wales railways to bona fide applicants for land.

A large area of land on both the Yanco and Mirrool sections of the areas has been specially reserved for discharged soldiers. Upon taking up residence on their farms these settlers will, subject to their intelligent and energetic use of the advances made, as well as their own labour, in the improvement of their farms, be provided with funds up to £625 to enable them to develop their holdings, and in addition thereto such further

advances up to certain definite limits fixed by the Commission may be made from time to time as found necessary to bring the farms to a proper stage of productiveness. All payments for rent, etc., and repayments of advances will be suspended in the case of fruit farms for five years and in the case of dairy farms for two years from the date of granting of the farm. The total indebtedness including interest will then become payable by instalments extending over a period of twenty years.

Towns and villages have been established at centres of the Yanco and Mirrool Irrigation Areas. The Commission is empowered to construct streets, and to provide water supply, sanitary, and other services.

An up-to-date butter factory, which is managed co-operatively by dairymen on the areas, is in operation at Leeton. The output for the year under review was approximately 285 tons, from between 160 and 170 suppliers. The factory also supplies ice to town residents and settlers. A fruit and vegetable canning factory has also been provided, which purchases vegetables and fruits grown by the settlers, and the output is rapidly increasing. Co-operative companies have also been successfully floated for the handling of fruit not suitable for canning. Extensive dehydration works have been established and successful pooling schemes evolved for the economic handling of fresh fruit. A bacon factory and abattoirs under the same management as the butter factory have been erected at Yanco, where the settlers' pigs are treated, and where stock for butchers is slaughtered for local consumption.

One of the most important departmental undertakings on the irrigation areas is undoubtedly the State Nursery. For some years past the Leeton Nursery has been supplying trees to settlers, and in 1916 a second nursery was established at Griffith. Every effort is made to supply only the very best trees, free from disease, and to ensure this, as much use as possible is being made of budding wood from proven trees in the Leeton Nursery, and at the Yanco Experiment Farm.

The Department of Agriculture, which controls the Yanco Experiment Farm, has also established at Griffith (Mirrool irrigation area), a Viticultural Nursery for the propagation of vines on phylloxera resistant stocks. These stocks are intended not only for the supply of settlers on the areas, but for vignerons in all parts of the State.

An electric power station having been erected near Yanco Siding, electric light and power are supplied to the various factories, business people, and residents of Leeton and Yanco, and the supply is also available for settlers when the number of applicants in any centre warrants the connections being made. Griffith also has this convenience to a limited extent so far as lighting is concerned.

On the 30th June, 1921, 1,361 farms were held, representing a total area of 75,974 acres, and the number of town blocks held was 543.

In the matter of cultivation, the following particulars indicate the extent of the work performed by the settlers:—There are approximately 5,548 acres under deciduous fruit, 2,485 under citrus fruits, and 2,443 under vines. The estimated population of the areas is about 8,700.

(iii) *Other Irrigation Settlements.* Irrigation settlements have been established at Curlwaa near Wentworth, and at Hay. These were placed in 1913 under the control of the Water Conservation and Irrigation Commission.

(a) *Curlwaa Irrigation Area.* The Curlwaa Irrigation area embraces 10,600 acres, of which on 30th June, 1921, irrigable holdings, comprising 1,426 acres, had been taken up, in areas of $1\frac{1}{2}$ to 40 acres. 98 non-irrigable holdings of from $\frac{1}{4}$ to 336 acres, representing an area of 6,967 acres, were in occupation on the above date. The balance of the area is made up of roads, common, channel and other reserves. Of the irrigable area $871\frac{3}{4}$ acres are planted as orchards and vineyards, of which $665\frac{1}{2}$ acres are in full bearing. There is also a small area under lucerne. It has been proved beyond doubt that the Curlwaa soil is eminently suited to the growth of citrus and other kinds of fruit. Some of the finest oranges grown in New South Wales are produced on this area.

The estimated weight of dried fruits produced on the Curlwaa area in the year 1920-21 was 7,032 cwt., the principal yields being sultanas, 2,099 cwt.; peaches,

1,577 cwt. ; and currants, 1,537 cwt. In the previous year the product was 8,038 cwt. ; in 1918-19, 7,992 cwt. ; in 1917-18, 6,580 cwt. ; in 1916-17, 4,865 cwt. ; in 1915-16 it was 5,955 cwt. ; in 1914-15 it was 3,178 cwt. ; in 1913-14, 5,118 cwt. ; and in 1912-13, 4,247 cwt. The heaviest crops were sultanas and currants. The value of the dried fruit production for the twelve months ending 30th June, 1921, is estimated at £40,471 ; in addition to which the area produced fresh fruit, crops, and other produce of the value of £14,370.

The pumping machinery consists of a suction-gas plant, one engine of 128 brake horse power driving one eighteen inch centrifugal pump and two engines each of 55 brake horse power driving a ten inch centrifugal pump. The average combined capacity of the pumps is 10,600 gallons per minute. With five pumpings during the 1920-21 season, 147,898,000 cubic feet of water were supplied. The length of the main channels is about 9 miles 10 chains. The land may be leased for periods not exceeding 30 years, the annual rent at present varying from 1s. to 24s. per acre. The rate for water is fixed from time to time by the Commission, and is at present, except in a few special cases, 20s. per acre per annum. Each lessee is entitled to receive a quantity of water equivalent to a depth of 30 inches per annum, limited to 4 inches in any one month.

There has been a keen demand for land, and values have generally increased. Surveys of extensions to the area comprising 966 acres have been completed, and it is intended to throw open 450 acres for application at an early date. A number of new dwellings have been erected, and others are in progress and projected.

Satisfactory progress has been made in the development of an area set apart two years ago for settlement by returned soldiers.

(b) *Hay Irrigation Area.* The Hay irrigation area consists of about 4,500 acres, and previous to 1913 was controlled by a Trust appointed in 1897. On 30th June, 1921, the area held and used for irrigation purposes was 1,039 acres, in 109 blocks of from 3 to 34 acres. The term of lease is generally 30 years, and the annual rental from 5s. to 12s. per acre. In addition, there was at that date an area of 2,698 acres of non-irrigated land taken up in 48 blocks. The water rate is fixed from time to time, and during 1920-21 was £1 10s. per acre per annum. The pumping machinery is of similar type to that at Curlwaa, the capacity of the pumps being 4,000 gallons per minute. During the 1920-1921 season 109,889,200 cubic feet of water were pumped with seven pumpings. Dairying is the principal industry ; the cultivation of fruit is very limited.

(iv) *Projected Irrigation Schemes.* The Water Conservation and Irrigation Commission are investigating schemes for utilising the New South Wales share of the Murray waters, and for storing water for the purpose of irrigation and stock and domestic supply on the Lachlan, Macquarie, Hunter, Namoi, Peel, and Warragamba Rivers.

(a) *Murray River.* The effect of constructing the Upper Murray storage will be to ensure at all times sufficient flow below Albury to permit of diversions for irrigation and stock and domestic supplies, and also to make good the losses in the river due to seepage, evaporation, and lockages. The Act provides that, subject to certain conditions, New South Wales and Victoria shall share the regulated flow of the river at Albury, and shall each have the full use of all tributaries of the River Murray within its territory below Albury, with the right to divert, store, and use the flows thereof.

It is estimated that the New South Wales regulated river flow after the construction of the Upper Murray storage will amount to at least 120,000 acre feet per month at Albury during the irrigating season, and this will permit of a considerable amount of irrigation development along the river.

An investigation is being made into the manner in which the New South Wales proportion of the Murray waters can be most profitably applied, but as yet no conclusion has been reached.

(b) *Lachlan River.* The construction of a storage reservoir at Wyangala, below the confluence of the Abercrombie River, is being investigated with the intention of affording water in the river channel for pastoral purposes and for the irrigation of limited areas along the river banks. A proposal is also being investigated for the increase of the storage in Lake Cudgellico, which is fed from the Lachlan River, and for the pumping thence of the water for the irrigation of an area of about 5,000 acres adjacent

to the lake. The possibility of regulating the amount of water diverted into numerous effluent creeks is being considered, so that the best use may be made of the Lachlan River water.

(c) *Macquarie River.* The construction of a storage reservoir on the river at Burrendong, below the confluence of the Cudgegong River, for the purpose of affording water for irrigation and stock and domestic supply below Wellington is now being investigated. Smaller schemes for the construction of storage dams at White Rock, and on Campbell's River, at Bathurst, have also received consideration. Systematic gaugings are being made of the river flow with a view to determining the quantity of water which will be available if the storage dam be constructed.

(d) *Hunter, Namoi, and Peel Rivers.* Pumping by private irrigators under license under the Water Act is increasing at such a rapid rate that in the case of some of the rivers, such as the Peel and the Hunter, it will not be possible to adequately supply the pumps in dry seasons until head storage works have been constructed. Surveys have been completed for storage dams on the Hunter and Peel Rivers and for a dam on the Namoi River above Manilla.

(e) *Warragamba River.* The Warragamba project will serve the dual purpose of augmenting the Sydney Water Supply and irrigating the best lands in the Nepean Valley. The rate of increase in the population of the metropolitan area during recent years, if maintained, will in a short space of time cause the consumption of water to overtake the capacity of the present catchment area of the Sydney water supply, and the next available source of supply will then be the Warragamba River, where a scheme for the storage of water has been investigated. It is proposed to construct a large storage dam capable of supplying about 200,000,000 gallons daily for water supply, irrigation and trade purposes, and for compensation water. Surveys have been made and details are being prepared of this scheme.

(v) *Water Rights.* By Part II. of the Water Act 1912, the right to the use and flow and to the control of the water in all rivers and lakes which flow through, or past, or are situate within the land of two or more occupiers is vested in the Crown. Private rights are abolished, riparian law is simplified, and a system of licenses is established for the protection of private works of water conservation, irrigation, water supply, drainage, and the prevention of inundation of land. The enactment prevents litigation and determines the rights of riparian owners, and it also enables such owners to obtain licenses to supply water to other occupiers of land not adjoining a river or lake.

During the year ending 30th June, 1921, 198 applications were received for fresh licenses, comprising 147 in respect of pumps, or pumps in conjunction with dams or other works, 39 in regard to dams, and 12 other works. The number of applications received for the renewal of existing licenses was 229; 160 of the applications were in respect of pumps, in some cases used in conjunction with dams or other works, 60 respecting dams, and 9 race and other works. Approximately, 1,343 licenses were in force on the 30th June, 1920, and in the succeeding twelve months 217 new licenses were issued and 79 were allowed to lapse, so that there were about 1,481 licenses current on the 30th June, 1921.

(vi) *Water Trusts and Bore Trusts.* Part III. of the Water Act 1912 provides for the supply of water either for irrigation, stock, or domestic purposes, and for drainage, the liabilities on which are repaid to the Crown, with interest spread over a period of years, and the works are administered by trustees appointed from among the beneficiaries under the Act; except in the case of trusts in the Western Division, where the Western Land Board is appointed as trustee. For the supply of water, trusts have been constituted in connexion with (a) seventy-eight artesian wells; (b) nine schemes for the improvement of natural off-takes of effluent channels, for the purpose of diverting supplies from the main rivers; (c) in three instances for the construction of weirs across stream channels; and (d) two pumping schemes, one from natural watercourses, and one from a well. The total area included within these trusts amounts to 7,642,171 acres.

3. *Victoria.*—(i) *Classification of Works.* The Water Conservation Works in Victoria divide themselves into irrigation works proper, and those providing mainly a domestic supply, such as the works for the supply of Melbourne, controlled by the Melbourne and Metropolitan Board of Works; the Coliban, Wonthaggi, Broken River,

Kerang Lakes, Naval Base and Mornington Peninsula, and Mallee Supply Works administered by the State Rivers and Water Supply Commission, and other works of domestic supply controlled by Water Works Trusts or Municipal Corporations. With the exception of the works administered by the Commission, particulars as to these works will be found on the section on *Local Government* in this volume.

(ii) *Works Controlled by the Commission.* With the exception of that of the First Mildura Irrigation and Water Supply Trust, all the irrigation schemes, and the more important domestic and stock water-supply works in rural districts, are vested in and controlled by the State Rivers and Water Supply Commission, a body composed of three members, which was created by the Water Act 1905, now incorporated in the Water Act 1915.

(A) IRRIGATION SCHEMES. This division comprises the schemes constructed and under construction for the supply of water to some twenty irrigation districts. Up to 1906 these schemes were controlled by local Trusts, which had obtained the moneys for their construction on loan from the State. By the Water Act 1905 all local control was abolished except in the case of Mildura, and the districts were transferred to the State Rivers and Water Supply Commission. Since that date the Government has adopted a vigorous irrigation policy, and the capital expenditure at 30th June, 1921, on water supply in the irrigation and water supply districts under the control of the Commission and at Mildura, exclusive of the amount (£278,000) expended by it on River Murray Agreement Works, was £5,091,000. The irrigation works draw their supplies mainly from headworks constructed on the Murray, Goulburn, and Loddon Rivers. The cost of these headworks which now stands at £1,124,000 is not debited to any particular districts but is borne by the State. The extent of land under irrigated culture last year for all kinds of crop was 283,000 acres. Although this is 88,714 acres less than the record area irrigated in the year 1919-20, it is nearly 32,000 acres above the average of the previous four years.

The following particulars of the principal schemes will be of interest, and will convey some idea of the extent to which the one-time arid northern portion of this State is now insured against droughts like that of 1902, when the combined capacities of its storages for irrigation by gravitation were only 75,000 acre feet, and of its pumping plants, 400 acre feet per day.

(a) *Goulburn Scheme.* The Goulburn River Gravitation Scheme (see Official Year Book No. 13, map on page 561) is the largest of Victoria's irrigation enterprises. It serves, either for irrigation or domestic and stock purposes, 868,000 acres of land in the valleys of the Goulburn, Campaspe and Loddon Rivers. The present headwork of the system is a diversion weir on the Goulburn River, near Nagambie. It is constructed of concrete masonry, with 21 flood gates, which raise the up-stream water level 10 feet above the concrete crest. These gates are lowered, during high stages of river flow, to provide a clear waterway for the discharge of floods. The weir has a total length, including channel regulators, of 925 feet, and a height of 50 feet. The water is diverted by two main channels, the eastern carrying 330 cubic feet per second (660 acre feet per day) a distance of 33 miles to the country north of the Broken River, while the western, which has a capacity of 1,700 cusecs,* and a length of 23 miles, is used to feed distributaries of the Rodney District and to fill Waranga Reservoir, the present principal storage basin of the scheme. This reservoir, formed by an earthen embankment $4\frac{1}{2}$ miles long across a natural depression, covers an area of $22\frac{1}{2}$ square miles to an average depth of 23 feet, and stores 333,400 acre feet. Two main channels issue from this reservoir, the Waranga-Rodney, of 250 cusecs* capacity, which feeds Rodney distributary channels, and the Waranga-Campaspe-Serpentine, which leaves the reservoir with a capacity of 1,000 cusecs, and ends at the Serpentine Creek, 92 miles westward, with a capacity of 200 cusecs. The total length of distributary channels is 1,650 miles.

With a view of meeting the increasing demand for water in dry seasons, and providing an irrigation supply for other suitable lands, the Commission is constructing a storage

* Cusecs = Cubic feet per second.

reservoir on the Upper Goulburn, just below its junction with the Delatite River, at what is known as the Sugarloaf site. The dam, which is 2,550 feet in length, consists of a diaphragm wall of reinforced concrete, built from bed rock (in some places 75-feet below natural surface) to crest level 135 feet above the river bed; a wall of clayey material on the upstream side of the diaphragm; and supporting masses of rock. This reservoir will submerge an area of 7,600 acres, and store about 300,000 acre feet of water, bringing the total capacity of the Goulburn storages to 654,000 acre feet. The foundations of the Sugarloaf structure will permit of the dam being raised, if necessary to a height of 190 feet above the river bed. This would add 8,600 acres to the area submerged, and would increase the storage capacity from 300,000 to 900,000 acre feet. The construction of the first stage of this reservoir is nearing completion, and the storing of water will be commenced in 1922.

The portion of the State served by this system comprises 19,000 acres east of the Goulburn, 565,000 acres between the Goulburn and the Campaspe, and 284,000 acres between the Campaspe and the Loddon. These areas include the irrigated Closer Settlements at Shepparton, Stanhope, Tongala, Rochester, and Dingee (see "Closer Settlement in Irrigation Districts," page 177), in which annual water rights are allotted of not less than one acre foot of water to each acre of irrigable land. They include also the districts formerly controlled by the Rodney and Tragowel Plains Irrigation Trusts, in which districts, generally, the holdings are larger than in Closer Settlement areas. The water rights in these districts are, for lands under intense culture, one acre foot of water to each irrigable acre, and for other irrigable lands, one acre foot to four irrigable acres in the former district, and one to five in the latter. The balance of the area, including Deakin district, while not subject to a compulsory irrigation charge, is provided with a domestic and stock supply, and water is sold for occasional irrigation on application. The amount of the compulsory charge for irrigation water allotted as a "right" is at present 6s. per acre foot in the two districts—Tragowel Plains and Dingee—farthest removed from the sources of supply, and 5s. per acre foot elsewhere.

(b) *Loddon River Scheme.* This also is wholly a gravitation system. The headwork is a regulating weir on the Loddon at Laanecoorie, about 22 miles westerly from Bendigo. This weir is constructed of concrete masonry with "Chaubart" automatic floodgates five feet high for a length of 320 feet, combined with an earthen embankment, the length over all being 940 feet. Its storage capacity is 14,000 acre feet. Other works of the scheme are timber diversion weirs at Serpentine and Kinypanial, 80 and 120 miles downstream respectively, also 160 miles of channels (taken over from several irrigation Trusts in the Boort district) which supply an area of 74,000 acres for domestic and stock purposes and partial irrigation.

(c) *Murray River Schemes.* These comprise both gravitation and pumping schemes. The only wholly gravitation system is that known as the Kow Swamp scheme, which supplies the Kerang irrigation district of some 85,000 acres. The off-take is at Torrumbarry headworks, from which the Gunbower channel diverts water, when the Murray River is five feet above summer level, to the Kow Swamp storage, a natural depression improved so as to hold a volume of 41,000 acre feet. From this reservoir the water is distributed by the Macorna channel (40 miles in length) and about 200 miles of distributaries.

The Cohuna, Gannawarra, Koondrook and Swan Hill Schemes are combined gravitation and pumping schemes. The Cohuna-Gannawarra plant consists of two 36 inch and four 39 inch centrifugal pumps—total capacity 280 cusecs*; those at Koondrook and Swan Hill, each of 100 cusecs capacity, consist each of two 39 inch centrifugal pumps. The pumped supplies are supplemented at varying stages of river level by the gravitation water. When the Torrumbarry dock weir, now being constructed under the River Murray Agreement is in operation, these pumping plants will not be required, as the raising of the water level in the River Murray, by this work, will enable irrigation supplies to be taken by gravitation throughout the irrigation season.

The Cohuna, Koondrook and Swan Hill Districts, comprising 107,000 acres, embrace the irrigated Closer Settlements of the same names. In these districts and that of Gannawarra (comprising 44,000 acres) the quantity of water allotted as a "right" is one

* Cusecs = Cubic feet per second.

acre foot per irrigable acre. The compulsory charge is at present 5s. per acre foot of such water right. In Kerang district—not under a compulsory irrigation charge—water is sold to irrigators on application at a charge not exceeding 3s. per acre foot of water supplied. In the Swan Hill district 2,600 acres of irrigable land have been purchased for soldier settlement, and subdivided into 83 holdings. The channel system has been correspondingly extended.

The Nyah Irrigation Area was occupied in 1894 under village settlement conditions, settlers being allowed up to 50 acres each. Individual attempts at irrigation having proved unsuccessful, a Government scheme was prepared for the whole settlement. A number of settlers surrendered portions of their holdings, which were too large for effective working, and these portions, with adjacent Crown lands, were re-subdivided and made available, under the Murray Settlements Act 1907, on easy terms. Water is diverted from the Murray by a high lift pumping plant—capacity 45 cusecs*—consisting of four coupled 24 inch centrifugal pumps. The settlement now contains 3,800 acres, subdivided into 208 holdings, of an average area of 17 acres, of which 200 are settled. The settlers include 57 discharged soldiers. The channels have been extended to the soldiers' holdings and an additional pumping plant erected to meet the increased demand for water. Water rights are apportioned to these holdings on the basis of $2\frac{1}{2}$ acre feet of water for each irrigable acre, and the compulsory charge is at present 16s. per acre foot of such water rights. The land is devoted mainly to vineyards and orchards, and the settlers, taken as a whole, are making good progress. The value of irrigation to the district is reflected in the selling price of the land, fully planted blocks bringing remarkably high prices.

The Merbein Irrigation Area comprises 8,300 acres of what, twelve years ago, were Crown lands. This settlement now contains 384 holdings, averaging 21 acres each. These holdings also, when fully improved, sell at very high prices. The water is pumped from the Murray by two 36 inch high lift centrifugal pumps, capacity 50 cusecs* each, and one 24 inch turbine centrifugal pump, capacity 20 cusecs. The land settlement conditions and water rights apportioned are the same as at Nyah, but the compulsory charge is at present 20s. per acre foot. The Crown lands added to this district for soldier settlement furnished 160 holdings. All are now connected with the channel system, and the pumping plant has been enlarged to ensure an efficient supply of water.

The Red Cliffs Irrigation Settlement comprises 15,000 acres of first-class irrigable land adjoining the Mildura Settlement. It is the irrigable portion of the large Red Cliffs estate of 33,000 acres, known as the Debenture Holders' Land, acquired by the State for soldier settlement (see, page 179). The scheme of works for this district includes a pumping plant which will have a capacity of 250 cusecs, or 500 acre feet per day—lifted 105 feet. One unit, a 36 inch high lift centrifugal pump (capacity 50 cusecs) has been installed, and the remainder of the plant—two 48 inch turbine pumps (capacity 100 cusecs each)—are under construction. Each pump will be driven by a 1,600 b.h.p. steam turbine. The rising main is of reinforced concrete, 6 feet 6 inches diameter, length 34 chains. An electric generator, of about 350 k.w. capacity, will be installed to provide for relifts, to water those parts of the area above the general level.

(d) *Werribee River Schemes.—Bacchus Marsh.* The headwork of this gravitation scheme is a reservoir of 15,000 acre feet capacity on Pyke's Creek, a tributary of the Werribee, the intake from the creek catchment being supplemented by a tunnel through a dividing spur, which taps the Werribee River near Ballan. The dam, 1,000 feet in length and 100 feet in height, is built of earth, with dwarf concrete core. The area of the district is 6,600 acres—half of which is irrigable—and includes some of the richest lucerne land in the State. The annual water right is one acre foot per irrigable acre, and the present compulsory charge is £1 per acre foot of such right. The higher portion of the district receives a supply for domestic and stock purposes.

Werribee. This is another gravitation scheme on the same river. The headwork is a reservoir at Melton, immediately below the Bacchus Marsh district. The dam is of earth, with dwarf concrete core. Its length is 600 feet, height 100 feet, and the storage capacity of the reservoir 17,000 acre feet. A diversion weir

*Cusecs=Cubic feet per second.

at Werribee, 17 miles downstream from the reservoir, a main channel therefrom, and the usual distributaries and appurtenant works, complete the scheme. The irrigation district comprises 8,100 acres of first-class land, being the irrigable portion of the Werribee Closer Settlement Estate, which is within 20 miles southwesterly of Melbourne. The water right allotment is one acre foot per irrigable acre, and the charge at present is 10s. per acre foot. The non-irrigable portion of the estate, containing about 13,000 acres, is supplied with water for domestic and stock purposes.

(B) DOMESTIC AND STOCK SCHEMES. (a) *General*. The second division takes into account the schemes constructed and under construction for the supply of water for domestic and stock purposes, the capital expenditure on which at 30th June, 1921, was £5,546,000. The area of country lands artificially supplied with water for these purposes is nearly 21,000 square miles. The number of towns supplied, exclusive of the City of Melbourne and its suburbs, is 167, serving an estimated population of 328,700. In addition to the Commission's districts, some large areas are still administered by local authorities.

(b) *Wimmera-Mallee System*. The principal scheme in this division is that known as the *Wimmera-Mallee Gravitation Channel System*. This comprehensive scheme of works will compare favourably, it is believed, with any similar individual scheme for domestic and stock service, in any part of the world. The main supply is drawn from three reservoirs in the catchment area of the Wimmera River, at the foot of the Grampians Ranges, viz.:—Lake Lonsdale, Wartook, and Fyans Lake. A fourth—Taylor's Lake—now under construction, is nearing completion. The reservoirs in use, including some minor works, have a combined storage capacity of 118,000 acre feet. The completion of the works in progress will bring this total to 200,000 acre feet. The water is conveyed, partly by natural water-courses, but chiefly by artificial channels, aggregating over 4,000 miles in length, over farming districts comprising about 9,000 square miles, approximately one-tenth of the whole State (see Official Year Book No. 13, map on page 562).

(c) *Northern Mallee Water Supply Scheme*. In what is known as the northern mallee, an area of about 1,250,000 acres, adjoining the Wimmera-Mallee Gravitation Channel System, but above its channel level, the Commission has provided a water supply for the large wheat holdings in the Walpeup district, by means of bores and large public tanks. The number of successful Government bores in use in this area is 92, their average depth being 420 feet. There are also 161 tanks, having a total capacity of 900,000 cubic yards, or 152 million gallons.

(d) *Naval Base and Mornington Peninsula Scheme*. Another scheme in this division which calls for mention here is the *Naval Base and Mornington Peninsula Scheme*. This comprehensive scheme—prepared at the request of the Naval Authorities—is for the supply of water to the Flinders Naval Base, and for the service of fifteen townships en route, including Berwick, Beaconsfield, Pakenham, Aspendale, Chelsea, Carrum, Frankston, Mornington, and Hastings. An ample supply of water is obtainable from the headwaters of the Bunyip River, which drains some 30 square miles of forest country above the point of off-take. The works are so far advanced that water is already being delivered at the Naval Base, and to the townships of Mornington, Frankston, Aspendale, and the intervening bayside towns.

The scheme is being extended to supplement the supply to the township of Dandenong, hitherto controlled by a local Trust, the works of which were recently transferred to the Commission, which will administer them as part of the general scheme.

(e) *Flood Protection*. The Water Acts of Victoria provide for the constitution of Flood Protection Districts, in which the residents are rated for schemes carried out for their benefit. The works are constructed, and Districts administered by the State Rivers and Water Supply Commission. Under these provisions the Commission is carrying out extensive schemes at Koo-wee-rup and Cardinia, in the south-eastern portion of the State, and works, on a smaller scale, at Echuca.

(iii) *Mildura*. The creation of an irrigation colony at Mildura was the outcome of a visit by Mr. Deakin to California in 1885, when Messrs. Chaffey Bros. were invited to visit Victoria, with the object of founding a similar settlement to those which they had been largely instrumental in establishing in California.

Active operations were commenced in 1887, since which date marvellous progress has been made, instanced in the fact that, originally used as a sheep run and carrying one sheep to every thirty acres, the dried fruit harvested from 13,000 acres in 1920 was valued at £1,238,373 gross.

Water is pumped and supplied under Act of Parliament by the First Mildura Irrigation Trust from the river Murray from two pumping stations:—(1) into a billabong, and thence to pumps lifting to various levels, and (2) to a comparatively small area adjacent to the town.

The length of the Trust's main and subsidiary channels is 280 miles. For the year ending 30th June, 1921, the Trust's receipts aggregated £38,292, and its expenditure £45,830. For the same period the number of water acres supplied was 35,632.

Loans (balance) advanced to the Trust by the Government for the purpose of improving the plants and channels, etc., amounted at 30th June, 1921, to £94,900. exclusive of the sum of £8,548 (balance) arrears of interest.

The area of the settlement is 45,000 acres, of which 13,000 acres are under intense culture, vines predominating.

4. *Queensland.*—The main irrigation works in Queensland are as follows:—(a) those at Ayr, which utilise the waters of the Burdekin River, and shallow wells on its banks; (b) Townsville (wells, creek, and river); (c) Rockhampton (wells, river, creek, etc.); (d) those at Bingera, near Bundaberg, which utilise water pumped from the Burnett River just above the point of meeting of the salt and fresh waters, and (e) those at Fairy-mead, which utilise water pumped from a number of shallow spear wells sunk on the alluvial flats on the north side of the Burnett River and about six miles from Bundaberg. There were 704 irrigators in the State in 1920, chiefly farmers and graziers, and the area irrigated was 9,803 acres.

5. *South Australia.*—(i) *The Renmark Irrigation Trust.* The Renmark Irrigation Trust was established in 1893 on similar lines to Mildura, but on a smaller scale. The area of settlement is 21,000 acres, the area under irrigation being 7,360 acres. There are also 1,000 acres under crop for hay. The dried fruit pack for 1921 was 1,450 tons, green fruit 5,000 tons, and the gross value of the production for the year exceeded £235,000. The population of the town and settlement is 4,000. The chief products are sultanas, currants, raisins, oranges, apricots, peaches, pears, prunes, olive oil, and grape spirit. There are two distilleries for the manufacture of grape spirit, and several packing sheds for dried fruits.

(ii) *Other Waterworks.* A number of country water works are under the control of the Public Works Department. As, however, they are not irrigation works properly so called, but are used for supplying water for domestic purposes, etc., to several towns, no further reference will be made to them in this chapter. (See Section xxvi., *Local Government.*)

(iii) *Area under Irrigation.* The Irrigation Areas on the River Murray above Morgan under Government control, up to the end of February, 1922, contained 15,089 acres of irrigable land, allotted to 874 settlers, about 1,300 acres reserved by the Department for fodder cultivation, etc., 1,600 acres ready for allotment, and about 23,000 acres in course of preparation. The pumping plants at present installed on these areas aggregate 5,698 horse power, with a pumping capacity of 6 million gallons per hour.

The *Cadell Irrigation Area* is 7 miles by river above Morgan. Total area of settlement, 2,726 acres, of which 1,183 are irrigable. Blocks have been allotted to 77 soldier settlers, and the balance is ready for allotment in 10 blocks. The area is suitable for fruit growing. First allotment 30th September, 1919. The pumping plant is a 190 b.h.p. steam plant with centrifugal pump, capacity 4,200 gallons per minute against a head of 90 feet.

The *Waikerie Irrigation Area* is 39 miles above Morgan by river. This area includes the old Waikerie and Ramco settlements. The total area of settlement is 9,276 acres, of which 2,806 acres is first-class irrigable land, growing fruit trees and vines. This area is divided between 136 settlers, and the first allotment took place on the 5th July, 1910. The pumping plant consists of five units, four suction gas and one steam unit, with a total of 1,440 b.h.p. Capacity of plant 17,700 gallons per minute against a total head of 150 feet.

The *Holder Irrigation Area* adjoins the Waikerie Irrigation Area, and has been incorporated as a portion of that area. It contains 358 acres of irrigable land, and 2,017 acres of dry land. Blocks have been allotted to 24 settlers, including 11 soldier settlers. The pumping plant consists of two steam units, total b.h.p. 338. Capacity, 4,750 gallons per minute. One hundred and ten acres of irrigable land adjoining, held by Holder Ltd., is irrigated by this plant.

The *Kingston Irrigation Area* is situated 75 miles above Morgan by river and comprises the old village settlement of that name. It has a total area of 3,748 acres, of which 493 acres are irrigable. This area was allotted to 30 settlers in July, 1914, and is used for fruit and vine culture. The pumping plant is 118 b.h.p. steam plant, capacity of pump 2,000 gallons per minute, total head 118 feet.

The *Moorook Irrigation Area*, adjoining the Kingston Area, contains 5,959 acres of land, of which 1,062 acres is good land suitable for vines and fruit culture. Altogether 1,028 acres of irrigable land have been allotted to 54 settlers, of whom 35 are soldier settlers. First allotment of area, March, 1916. The area is irrigated by a 430 b.h.p. steam plant, of two units, with a capacity of 7,160 gallons per minute against a total head of 142 feet.

The *Cobdogla Irrigation Area* is on the opposite side of the river to Kingston and Moorook Areas. It was formerly a sheep station, and was resumed by the Government for irrigation purposes. The total area of the station was 160,000 acres, of which 23,400 acres has been set apart as the Berri Area, and the remainder, 136,600 acres, as the Cobdogla Area. The latter area includes Lake Bonney, 4,000 acres in extent. This lake is situated 3 miles inland from the Murray, and is filled at high rivers by Chamber's Creek, a winding waterway. The water is retained in the lake by a weir with movable shutters, erected at the junction of the lake and creek. The Cobdogla Area contains about 30,000 acres of first-class land, capable of intense culture. The area is divided into five divisions, the Cobdogla, Nookamka, Loveday, Weigall, and MacIntosh divisions. The Cobdogla Division has 1,834 acres of irrigable land, suitable for vines, fruit, or fodder. Six hundred and twenty-one acres have been allotted to 15 settlers, and 1,210 acres are being used by the Department for nursery, fodder growing, and other purposes. The Nookamka Division, south of Lake Bonney, includes 2,200 acres of irrigable land, 1,241 acres have been allotted recently to 79 soldier settlers, and the balance is ready for allotment in 75 blocks. The Loveday Division will contain about 9,000 acres of irrigable land: constructional work is proceeding on this area, and the blocks will soon be ready for allotment. The Cobdogla Area when completed will accommodate about 1,800 settlers. The pumping plant on the Cobdogla Division at present installed is a 340 b.h.p. steam plant, capacity 16,700 gallons per minute, against a total head of 40 feet. A second pumping plant of two units has been installed on the Nookamka Division at the south end of Lake Bonney. These are a 390 b.h.p. and a 250 b.h.p. steam units with capacities of 9,000 and 4,000 gallons per minute against a head of 100 feet. A second lift plant is being installed on the Loveday Division with a capacity of 6,000 gallons per minute. The completed area of Cobdogla will have five pumping stations, two on the lake, at the north end and the south end, two on the River Murray, and one intermediate from the Low Lift.

The *Berri Irrigation Area* is 120 miles above Morgan by river, and contains a total area of 23,400 acres, of which 8,100 acres is first-class land for fruit and vine culture. 7,450 acres of irrigable land has been allotted to 459 settlers, of whom 276 are soldier settlers, and 504 acres are ready for allotment in 35 blocks. Eighty acres of irrigable land are used as a Government Experimental Farm. The first allotment of the older portion of this area took place in January, 1911. The pumping plant consists of 6 units, 3 suction gas and 3 steam units, with a total of 2,202 b.h.p. and a capacity of 33,700 gallons per minute against total heads varying from 50 ft. to 120 ft.

The *Chaffey Irrigation Area* comprises a large area of country adjacent to Renmark at present known as Ral Ral. Survey work is proceeding over 14,000 acres of prospective irrigable land to be divided amongst 850 settlers. A portion of this area, 1,800 acres, is at present under preparation with channel construction and subdivision work. A pumping plant with a capacity of 12,500 gallons per minute against a total head of 50 feet is being installed. The 1,800 acres will soon be ready for allotment in 111 blocks.

The 12,200 acres will be irrigated with a lift of 100 feet, and the preliminary survey work is being carried out as rapidly as possible. The future extension of this area may reach a total of 100,000 acres of irrigable land, with lifts not exceeding 100 feet.

The *Irrigation and Reclaimed Swamp Areas* under Government control on the River Murray below Morgan contain 5,700 acres of high, irrigable, and reclaimed swamp land, allotted to 240 settlers. The former land is irrigable by pumping, and the latter by gravitation. There are also 1,270 acres ready for allotment to 68 settlers, and 5,620 acres under preparation, which will accommodate 256 additional soldier settlers. Pumping plants installed, total 1,500 b.h.p. Capacity $3\frac{1}{2}$ million gallons per hour.

Mobilong and Burdett Areas adjoin Murray Bridge, and contain 586 acres of reclaimed fodder land with 45 settlers.

Long Flat and Monteith Flat below Murray Bridge have between them a reclaimed area of 1,342 acres, divided between 57 settlers.

Swanport Area below Murray Bridge has 191 acres of fruit and fodder land with 8 soldier settlers, and blocks for 6 more settlers.

The *Jervois Irrigation Area* is in course of construction. It is 15 miles below Murray Bridge, and includes 290 acres of high irrigable and 1,081 acres of reclaimed land. It will accommodate 62 settlers when completed.

The *Woods Point Area* is 12 miles below Murray Bridge, and contains in its total area of 3,726 acres about 1,218 acres of reclaimed land. The area is in course of preparation and will accommodate 54 soldier settlers.

The *Wellington Area* is 18 miles below Murray Bridge, and has an area of over 12,000 acres; of this area about 1,670 acres are reclaimed land. This area will provide for 73 soldier settlers, and is at present in course of preparation for settlement.

The *Mypolonga Area* is 9 miles above Murray Bridge. This area has a river frontage of 7 miles. The total area of this settlement is 5,800 acres, of which 1,036 are irrigable and 1,627 acres reclaimed land. The area has 84 settlers.

The *Pompoota Area* is situated 13 miles above Murray Bridge, and was up till recently used as a Training Farm for prospective soldier settlers, and will now be allotted amongst 38 of the trainees. The area contains 670 acres of fruit and fodder land.

The *Wall Area*, 16 miles above Murray Bridge, has 768 acres of irrigable and reclaimed land. Nineteen soldier settlers are settled on the area, and blocks are available for 11 more.

The *Neeta and Gowirra Irrigation Areas* are 20 miles above Murray Bridge, and include 410 acres of highly irrigable land, and 1,745 acres of reclaimed fodder land. These areas are in course of preparation, and at present 21 soldier settlers have been placed on the blocks. A further 79 settlers can be accommodated when areas are complete.

The *Mannum Area* is about 21 miles above Murray Bridge, and has an area of 1,350 acres. 528 acres will be reclaimed and allotted to 26 soldier settlers in the near future.

Lake Albert. There is a possibility of this Lake being reclaimed in the near future, which will give an area of about 40,000 acres suitable for dairying. The total area, including aforementioned areas adjacent to the River Murray, possible of reclamation or of being brought under irrigation, including 75,000 acres of Lake Alexandrina, is 282,556 acres.

The reclaimed lands consist of peaty soils composed of rich river silt, and are eminently suited for the growth of lucerne and other fodders, onions, potatoes, etc. The soils of the irrigable lands have already proved their suitability for the production of peaches, apricots, nectarines, oranges, lemons, figs, and grapes.

(iv) *Allotment of Irrigated Land.* All lands are allotted under perpetual lease, and blocks are surveyed into areas varying up to 50 acres of irrigable or reclaimed land. No lessee is permitted to hold more than 50 acres of irrigable or reclaimed land or of both irrigable and reclaimed, except that in the case of a partnership 50 acres may be allotted for each member of the partnership up to a maximum of 160 acres.

In addition, areas of non-irrigable land are allotted to lessees of irrigation and reclaimed blocks for dry farming. The rentals of the blocks are fixed by the Land Board

immediately prior to the land being offered for application. For the reclaimed land an amount is charged sufficient to cover interest on cost of land and reclamation, while for the irrigable land the rent is based on the unimproved value of Crown Lands, or to cover interest on cost of repurchased lands.

On the irrigable land, the water rate has been fixed at 60s. per acre per annum for the first four years, after which an amount will be charged sufficient to cover actual cost of supplying water, and interest on pumping plant, channels, etc. On the reclaimed lands an amount is charged to meet the annual management, drainage and maintenance expenses. A sliding scale covers the rent on all land, and water rates on the irrigable land for the first four years, i.e., first year, one-quarter of the rent and water rates; second year, one-half; third, three-quarters; fourth, and afterwards, full amount per acre. On the irrigable lands, each lessee is entitled for the water rate to 24 acre inches per annum, supplied in four irrigations; special irrigations and domestic supplies are supplied at times other than during the general irrigations, at a nominal cost. On the reclaimed lands water is supplied regularly by reticulation from the river.

The Department assists settlers by fencing, clearing, grading, and constructing irrigation channels and tanks. Such improvements are undertaken up to a value not exceeding £30 per acre of the irrigable area in each lessee's block, but before the work is commenced a deposit must be paid equal to 15 per cent. of the Department's estimated value of such improvements. The total cost of the work, less deposit, is treated as a loan to the lessee, and is repayable in twenty equal annual instalments after the expiration of five years, or at any short period if desired by the lessee, current rate of interest being charged. Any lessee is permitted to accept the contract for carrying out his own improvements according to the specifications and estimates of the Department, up to the maximum amount per acre, as mentioned above. Advances can be obtained from the Advances to Settlers Board for the purchase of stock, discharging mortgages, erecting permanent buildings and other improvements, the first £400 being advanced on the fair estimated aggregate value of the settler's lease, and any improvements already made on the holding, and those in course of being made thereon. Any loan beyond £400 would not exceed 15s. in the £1 of the fair estimated value of the improvements already made.

There is, at the present time, no land available for civilian settlers, and it will possibly be two years before soldiers' demands are satisfied. So far as soldiers are concerned, the Department, in most instances, prepares and plants the land for fruit culture prior to allotment, and clears, channels, grades, and plants up to 10 acres of vines.

6. **Western Australia.**—An Irrigation Act has been brought into force providing for the constitution of irrigation districts. At Harvey, works for irrigating about 4,000 acres devoted to fruit growing, principally oranges, were opened on the 21st June, 1916. A scheme is now in preparation for irrigating a further area in the same district.

Numerous small private irrigation schemes are in full operation on many of the south-west rivers, in connection with fruit, fodder, and potato growing.

7. **Murray Waters.**—(i) *Water Rights of States.* The relative rights of the States of New South Wales, Victoria, and South Australia to the waters of the Murray River being undetermined, negotiations which had been in progress for some considerable time resulted in the passing of the River Murray Waters Act 1915. Territorially the south bank of the Murray River was the boundary between New South Wales and Victoria. The region of the river itself, up to the point of its entry into South Australia, was wholly within the former State. At the Federal conventions which preceded the establishment of the Commonwealth, the South Australian delegates expressed their fear lest too much irrigation on the Murray and its tributary, the Darling, might impair the navigability of the lower waters of the river. The result was the insertion of a provision in the Commonwealth Constitution, which reads as follows (Section 100):—

“The Commonwealth shall not by any law or regulation of trade or commerce abridge the right of a State or of the residents therein to the reasonable use of the waters of rivers for conservation or irrigation.”

(ii) *Conferences.* After considerable controversy, a conference was held in Melbourne in January, 1911, between the Premiers of New South Wales, Victoria, and South Australia, on the Murray Waters question. The main results of the conference were that Lake Victoria and certain lands adjacent thereto situated within New South Wales

territory should be handed over by New South Wales to South Australia for purposes of a storage basin, and that South Australia might lock her own portion of the Murray at her own expense; no rights of navigation were conceded by New South Wales and Victoria, who would not bind themselves to deliver any quantity of water at the point of intake into South Australia; the upper portions of the river were left free for irrigation.

In 1913 the three States appointed a Board of engineers to carry out investigations, with a view to ascertain means which would lead to a settlement of the whole question of the waters of the Murray and its tributaries. The Board in its report recorded its belief that the interests of irrigation are more important than those of navigation, and that the heavy expense of maintaining the latter is not warranted; suggestions relative to the apportionment between the three States concerned of the river waters and of the works contemplated for their conservation were also made. (See Official Year Book, No. 7, page 510.)

In April, 1914, further discussion took place at the Premiers' Conference in Melbourne, certain resolutions being agreed to by the Prime Minister of the Commonwealth and the Premiers of New South Wales, Victoria, and South Australia. (See Official Year Book, No. 8, page 507.)

(iii) *Constitution.* The River Murray Agreement was signed on 9th September, 1914, and in November, 1915, Acts ratifying the Agreement were passed simultaneously by the Parliaments of the Commonwealth and the three Contracting States. On 31st January, 1917, the Agreement was brought into operation, and the River Murray Commission, consisting of a representative of each of the four Contracting Governments, was appointed.

The Commission is charged with the duty of giving effect to the Agreement and the River Murray Waters Acts.

(iv) *Activities.* The Agreement provides for the construction of the following works:—

To be constructed by the Constructing Authorities for New South Wales and Victoria severally and jointly as may be agreed upon.—The Hume Reservoir; seventeen Weirs and Locks on the River Murray between Echuca and Wentworth.

To be constructed by the Contracting Authority for New South Wales.—Nine Weirs and Locks on the River Murrumbidgee.

To be constructed by the Contracting Authority for South Australia.—The Lake Victoria Storage; Nine Weirs and Locks on the River Murray below Wentworth.

The following works are now in course of construction, in accordance with the designs and estimates approved by the Commission:—

The Hume Reservoir, estimated cost £1,639,000. This Reservoir, which will be created by the construction of a dam immediately below the junction of the Mitta Mitta and Murray Rivers, will have a storage capacity of 1,000,000 acre feet. Work is proceeding on both the New South Wales and Victorian sides of the River.

Weir and Lock at Torrumbarry, near Echuca.—Estimated cost £120,000 (subject to revision).

The Lake Victoria Storage—Estimated cost £320,000. The Scheme approved provides for the construction of embankments and channels, and the improvement of Frenchman's Creek (the inlet channel to the Lake) and the Rufus River (the outlet channel). The Lake, on completion of the works proposed, will have a storage capacity of 514,000 acre feet.

Weir and Lock No. 9, situated immediately below the junction of the Frenchman's Creek (the inlet channel to the Lake Victoria Storage) and the main stream. Estimated cost £186,898.

Weir and Lock No. 5, near Renmark—Estimated cost £275,000.

Weir and Lock No. 3, near Kingston—Estimated cost £126,328.

The Weir and Lock at Blanchetown (No. 1), which was commenced by the South Australian Government before the River Murray Agreement came into effect, was completed during the early part of the present year, and has been brought into operation. The expenditure incurred on this work amounted to £220,000. All vessels carrying goods passing through this weir and lock will be liable to the payment of tolls at the rate

of 6d. per ton of freight carried, in accordance with the Tolls regulations prescribed by the Commission, in pursuance of Section 7 of the River Murray Waters Act 1915, and appearing in the *Commonwealth Gazette* of 23rd March, 1922.

(v) *Size of Locks.* It has been decided by the Commission and the Contracting Governments that all locks in the River Murray below the junction of that River with the River Darling shall be constructed of a length of 275 feet, and that the length of the locks to be constructed in the Murray above that point and in the River Murrumbidgee shall be 170 feet. It was recognised that the heavier traffic on the River Murray below its junction with the River Darling necessitated the construction of locks of a greater length than was required in connexion with the upstream locks.

(vi) *Finance.* The estimated cost of the whole of the works covered by the River Murray Scheme is set down in the Agreement at £4,663,000, and it is provided that the four Contracting Governments shall contribute thereto in the following proportions:—Commonwealth, £1,000,000; New South Wales, Victoria, and South Australia, each £1,221,000. It is now clear that, owing mainly to the increases which have occurred in the costs of materials and labour since the original estimate was framed, the ultimate expenditure on these works will be considerably in excess of that estimate. The actual expenditure incurred to the end of February, 1922, on the works carried out by the three Constructing Authorities was as follows:—New South Wales, £248,511 13s. 1d.; Victoria, £251,458 18s. 3d.; South Australia, £523,481 18s. 9d.; total, £1,023,452 10s. 1d.

(vii) *Estimated Expenditure during Year 1922–23.* The estimated expenditure during the Financial Year 1922–23 prepared by the Commission and forwarded to the four Contracting Governments in accordance with the requirements of Clause 34 of the Agreement, is £807,000, made up as follows:—

New South Wales—Hume Reservoir, £240,000; Weir and Lock, Wentworth, £60,000; Surveys and Borings, £10,000; total, £310,000.

Victoria—Hume Reservoir, £162,000; Weir and Lock, Torrumbarry, £80,000; Surveys and Borings, £8,000; total, £250,000.

South Australia—Weir and Lock No. 3, £100,000; Weir and Lock No. 5, £20,000; Weir and Lock No. 9, £40,000; Lake Victoria Storage, £87,000; total, £247,000.

The four Contracting Governments will contribute towards this proposed expenditure in the following proportions:—Commonwealth, £173,061 3s.; New South Wales, £211,312 19s.; Victoria, £211,312 19s.; South Australia, £211,312 19s.

(viii) *Gaugings.* All gaugings on the River Murray and its tributaries are made by the three Contracting States, which, in pursuance of an arrangement arrived at with the River Murray Commission, furnishes that body periodically for purposes of the Agreement with the results of such gaugings. Arrangements were made, as a result of recommendation by a Conference of Gauging Officers convened by the Commission, for uniform methods to be adopted in connexion with the recording of gaugings by the three State Authorities, and the returns furnished to the Commission setting out the results of such gaugings. The returns furnished to the Commission during the year 1921 indicated that the total flow of the River Murray at Morgan during that year was 11,257,829 acre feet, while the total volume of water diverted was estimated at 1,250,000 acre feet, of which a portion was again returned to the river.

(ix) *Amendment of the Agreement.* As a result of proposals placed before the Conferences of Premiers which met on 25th May and 20th July, 1920, and the discussions which took place thereon, an agreement, providing for the amendment of the River Murray Agreement of 1914, was entered into by the four Contracting Governments on 23rd November, 1920. In the Agreement as so amended it is proposed that the construction of all works covered by the River Murray Scheme shall be placed under the control of the River Murray Commission in lieu of the three Constructing Authorities as provided for in the Agreement of 1914. It is also provided that the four Contracting Governments shall contribute towards the cost of the Scheme in equal shares, and that all plant required for the construction of works shall be purchased by the Commission from funds provided by the four Contracting Governments. The Parliaments of the Commonwealth and the States of Victoria and South Australia have passed legislation giving effect to the amendments proposed. The ratification of this amended Agreement now awaits the passing of the necessary Act by the New South Wales Parliament.

SECTION XV.

COMMERCE.

§ 1. Introductory.

NOTE.—From the 1st July, 1914, the Trade Year, which was formerly the Calendar Year, was altered to coincide with the Fiscal Year (July to June).

1. **Constitutional Powers of the Commonwealth in regard to Commerce.**—The powers vested in the Commonwealth Parliament by the Commonwealth Constitution Act with respect to oversea trade and commerce will be found on page 15 (sub-section 51 (i)) and pp. 21 and 22 (sub-sections 86 to 95) of this volume.

§ 2. Commonwealth Legislation affecting Foreign Trade.

1. **Customs Act 1901 (No. 6 of 1901).**—“An Act relating to the Customs,” assented to on the 3rd October, 1901, came into operation by proclamation on the 4th October, 1901. This provided for the establishment of the necessary administrative machinery for all matters pertaining to the Customs, and prescribed, *inter alia*, the manner in which Customs duties shall be computed and paid. It did not, however,¹ determine the rates thereof.

During the interval between the inception of the Commonwealth, viz., on 1st January, 1901, and the coming into operation of the Customs Act 1901, the Customs Acts of the several States were administered, by the Executive Government of the Commonwealth, under section 86 of the Constitution.

2. **Customs Tariff Act 1902 (No. 14 of 1902).**—The first Commonwealth Customs Tariff imposing uniform rates of Customs duty in all the States was introduced in the House of Representatives on the 8th October, 1901. “An Act relating to Duties of Customs,” assented to on the 16th September, 1902, made provision that uniform duties of Customs specified in the tariff schedule should be imposed from the 8th October, 1901. From this date trade between the States became free, with, however, the exception, under section 95 of the Constitution Act, of the right of Western Australia to levy duty on the goods from other States for five years. [Repealed by the Customs Tariff Act 1908 (No. 7 of 1908).]

3. **Sea Carriage of Goods Act 1904 (No. 14 of 1904).**—“An Act relating to the Sea Carriage of Goods,” assented to on the 15th December, 1904, to commence on the 1st January, 1905, defines the responsibility of shipowners, charterers, masters, or agents in regard to goods carried.

4. **Secret Commissions Act 1905 (No. 10 of 1905).**—“An Act relating to Secret Commissions, Rebates, and Profits,” assented to on the 16th November, 1905, provides that “Any person who, without the full knowledge and consent of the principals directly or indirectly (a) being an agent of the principal, accepts or obtains, or agrees or offers to accept or obtain, from any person, for himself, or for any person other than the principal; or (b) gives or agrees to give or offers to the agent of a principal, or to any person at the request of an agent of the principal, any gift or consideration as an inducement or reward for any act done or to be done, or any forbearance observed or to be observed, or any favour or disfavour shewn or to be shewn in relation to the principal’s affairs or business or on the principal’s behalf, or for obtaining or having obtained, or aiding or having aided to obtain for any person an agency or contract for or with the principal, shall be guilty of an indictable offence.”

5. **Commerce (Trade Descriptions) Act 1905 (No. 16 of 1905).**—“An Act relating to Commerce with other Countries,” assented to on the 8th December, 1905, and brought into operation by proclamation on the 8th June, 1906, gives power to compel the placing of a proper description on certain prescribed goods, or on packages containing the same, being imports or exports of the Commonwealth.

6. **Australian Industries Preservation Act 1906 (No. 9 of 1906).**—“An Act for the Preservation of Australian Industries and for the Repression of Destructive Monopolies,” assented to 24th September, 1906, provides that any person or any corporation making

or engaging or continuing in any combination "with intent to restrain trade or commerce to the detriment of the public or with intent to destroy or injure by means of unfair competition any Australian industry the preservation of which is advantageous to the Commonwealth, having due regard to the interests of producers, workers, or consumers," or any person or corporation monopolising or attempting or conspiring to monopolise any part of the trade of the Commonwealth with intent to control, to the detriment of the public, the supply or price of any service, merchandise, or commodity, is guilty of an offence. (Amended by Acts No. 5 of 1908, No. 26 of 1909, and No. 29 of 1910.)

7. Customs Tariff 1906 (No. 14 of 1906).—"An Act relating to Duties of Customs" amended the Customs Tariff of 1902 in relation to the duties on harvesters and agricultural implements and machinery and prescribed the prices which were not to be exceeded of Australian harvesters and drills delivered to the purchaser at the railway station or port nearest to the factory where they are made. [Repealed by Customs Tariff Act 1908 (No. 7 of 1908).]

8. Customs Tariff (South African Preference) 1906 (No. 17 of 1906).—"An Act relating to Preferential Duties of Customs on certain goods the produce or manufacture of the British Colonies or Protectorates in South Africa which are included within the South African Customs Union," assented to 12th October, 1906, to operate from 1st October, 1906, provides for special preferential rates of duty on certain goods imported from and being the produce of any of the Colonies or Protectorates included within the South African Customs Union.

9. Australian Industries Preservation Act 1907 (No. 5 of 1908).—"An Act to amend the Australian Industries Preservation Act 1907," assented to 14th April, 1908, provides additional machinery for procuring evidence of offences against the principal Act.

10. Customs Tariff 1908 (No. 7 of 1908).—"An Act relating to Duties of Customs," assented to 3rd June, 1908, repeals section 5 of the Customs Tariff 1902 (No. 14 of 1902) and the schedule of that Act and the whole of the Customs Tariff 1906 (No. 14 of 1906) as from 8th August, 1907, and imposes new rates of Customs duties. This Act provides preference rates of Customs duties on certain "goods the produce or manufacture of the United Kingdom."—(Repealed by Act No. 25 of 1921.)

11. Customs Tariff Amendment Act 1908 (No. 13 of 1908).—"An Act to amend the Tariff Act of 1908," assented to 10th June, 1908. The purpose of this Act is merely to remove possible doubt as to the intention of the original Acts.—(Repealed by Act No. 25 of 1921.)

12. Australian Industries Preservation Act 1909 (No. 26 of 1909).—"An Act to amend the Australian Industries Preservation Acts 1906-1907" formally repeals sections 5 and 8 of the parent Act, which were declared by the High Court to be *ultra vires*. It also provides that, in relation to trade and commerce with other countries or among the States, the payment of rebates, or the refusal to sell, "either absolutely or except upon disadvantageous conditions," with the purpose of promoting exclusive dealing, shall be an offence.

13. Customs (Interstate Accounts) Act 1910 (No. 9 of 1910).—Repeals Sections 272 and 273 of the Customs Act 1901. These sections relate to the passing of dutiable goods from one State to another State of the Commonwealth, and their repeal was consequent on the termination of the book-keeping system of accounts between the Commonwealth Government and the Governments of the States, in favour of a system of payments based on population.

14. Australian Industries Preservation Act 1910 (No. 29 of 1910).—"An Act to amend the Australian Industries Preservation Act 1906-1909." This Act removes from the principal Act the obligation to prove intent to restrain trade and detriment to the public.

15. Customs Act 1910 (No. 36 of 1910).—"An Act to amend the Customs Act 1901" gives the Customs control of all goods for export, the exportation of which is subject to compliance with any condition or restriction under any Act or regulation, extends the machinery provisions for the prevention of the importation or exportation of goods which are prohibited imports or exports respectively, amends the provisions for the payment of

duty under protest, gives the Governor-General power to prescribe the nature, size, and material of the coverings for packages, and the maximum or minimum weight or quantity to be contained in any one package of goods imported or exported, or transported coastwise from one State to another; the condition of preparation or manufacture for export of any articles used for, or in the manufacture of, food or drink by man; the conditions as to purity, soundness, and freedom from disease to be conformed to by the goods for export.

16. **Customs Tariff 1910 (No. 39 of 1910).**—"An Act relating to Duties of Customs," amends the Customs Tariff of 1908 by more explicit definition of certain tariff items, and by alteration of some rates of duty. (Repealed by Act No. 25 of 1921.)

17. **Customs Tariff 1911 (No. 19 of 1911).**—"An Act relating to Duties of Customs," amends the Customs Tariff 1908-10 by alteration of some rates of duty. (Repealed by Act No. 25 of 1921.)

18. **Interstate Commission Act 1912 (No. 33 of 1912).**—In accordance with the provisions of the Commonwealth Constitution Act—sections 101 to 104 (see page 23 *ante*)—an Act relating to the Interstate Commission was assented to on the 24th December, 1912. This Act provides for the appointment of the Commission, and cognate matters.

19. **Trading with the Enemy Act 1914 (No. 9 of 1914).**—"An Act relating to the control of trade during the war with Germany and Austria-Hungary." This Act was amended by Act No. 17 of 1914, and by Act No. 23 of 1921.

20. **Customs Act 1914 (No. 19 of 1914).**—Amends the Customs Act 1901-10 by extending the powers of the Governor-General to prohibit the exportation of goods in time of war.

21. **The Income Tax Assessment Act 1915 (No. 34 of 1915) and Amendment thereto (No. 47 of 1915).**—Provide that "In the case of a person selling goods in Australia on account of a person not resident in Australia, or on account of a company not registered in Australia, the principal shall be deemed to have derived from such sale a taxable income equal to five pounds per cent. upon the price at which the goods were sold. The person selling the goods shall be assessable on the taxable income as the agent for the principal, and shall be personally liable for the payment of the tax to the extent of the tax payable on goods sold by him after the 30th June, 1915. Goods shall be deemed to be sold in Australia on account of a person not resident in Australia, if any person in Australia receives a commission in respect of the sale of the goods or is paid a salary for obtaining orders for or for influencing the sale of the goods."

22. **Customs Tariff Validation Act 1917 (No. 6 of 1917).**—"An Act to provide for the validation of—(1) Collections of Customs duties under tariff proposals introduced into the House of Representatives on the 3rd December, 1914; (2) the remission of Customs duty on wheat as from the 12th December, 1914; (3) the remission of Customs duty on oats as from the 27th February, 1915; and (4) the restoration of the Customs duties on wheat and oats from the 12th November, 1915."

23. **Apple Bounty Act (No. 21 of 1918).**—This Act appropriates from the Consolidated Revenue Fund the sum of £12,000, for the payment, to the grower, of a bounty of $\frac{7}{10}$ d. per pound upon the export of apples grown and evaporated in Australia under certain prescribed conditions, and sold to the Imperial Government for delivery between the 1st April and 31st August, 1918.

24. **Customs Tariff Validation Act 1919 (No. 17 of 1919).**—Provides for the validation of collections of Duties of Customs under Tariff proposals introduced into the House of Representatives on the following dates, namely:—10th August, 1917; 26th September, 1917; and 25th September, 1918.

25. **Customs Act of 1920 (No. 41 of 1920).**—"An Act to amend the Customs Act 1901-16," assented to 10th November, 1920. This Act indicates the rates of exchange, which shall be used under various circumstances in computing the value for duty of imported goods.

26. Customs Tariff 1921 (No. 25 of 1921).—The Tariff Schedule which was submitted to Parliament on the 24th March, 1920, provides a British Preferential Tariff, an Intermediate Tariff, and a General Tariff. The Tariff Act provides that the Preferential Tariff or the Intermediate Tariff may, under reciprocal arrangements, be extended to other British Dominions, and that the Intermediate Tariff may in certain circumstances apply to foreign countries.

27. Tariff Board Act of 1921.—Assented to 15th December, 1921. The Bill provides that—(1) The Minister shall refer to the Board for inquiry and report the following matters:—(a) the classification of goods under all Tariff Items which provide for classification under by-laws; (b) the determination of the value of goods for duty under section 160 of the *Customs Act* 1901–1920; (c) any dispute arising out of the interpretation of any Customs Tariff or Excise Tariff, or the classification of articles in any Tariff, in which an appeal is made to the Minister from the decision of the Comptroller-General; (d) the necessity for new, increased, or reduced duties, and the deferment of existing or proposed deferred duties; (e) the necessity for granting bounties for the encouragement of any primary or secondary industry in Australia; (f) the effect of existing bounties or bounties subsequently granted; (g) any proposal for the application of the British Preferential Tariff or the Intermediate Tariff to any part of the British Dominions or any foreign country, together with any requests received from Australian producers or exporters in relation to the export of their goods to any such part or country; (h) any complaint that a manufacturer is taking undue advantage of the protection afforded him by the Tariff, and in particular in regard to his (i) charging unnecessarily high prices for his goods; or (ii) acting in restraint of trade to the detriment of the public; or (iii) acting in a manner which results in unnecessarily high prices being charged to the consumer for his goods, and shall not take any action in respect of any of those matters until he has received the report of the Board. (2) The Minister may refer to the Board for their inquiry and report the following matters:—(a) the general effect of the working of the Customs Tariff and the Excise Tariff, in relation to the primary and secondary industries of the Commonwealth; (b) the fiscal and industrial effects of the Customs laws of the Commonwealth; (c) the incidence between the rates of duty on raw materials and on finished or partly finished products; and (d) any other matter in any way affecting the encouragement of primary or secondary industries in relation to the Tariff. (3) If the Board finds on inquiry that any complaint referred to it under paragraph (h) of sub-section (1) of this section is justified, it may recommend—(a) that the amount of duty payable on the goods the subject of the complaint be reduced or abolished; or (b) that such other action as the Board thinks desirable be taken—but shall, before it makes any such recommendation, consider carefully the conditions obtaining in the industry as a whole.

28. Customs Tariff (New Zealand Preference) Act of 1921 (No. 27 of 1921).—“An Act relating to Preferential Duties of Customs on certain Goods the produce or manufacture of the Dominion of New Zealand,” assented to 16th December, 1921, provides that the British Preferential Tariff rates may be applied to the produce of New Zealand.

29. Customs Tariff (Industries Preservation) Act—(Anti-dumping) 1921 (No. 28 of 1921).—On the 6th July, 1921, the Minister for Trade and Customs moved a resolution that after inquiry and report by the Tariff Board, special duties should be collected in the following cases, when the importation of the goods referred to might be detrimental to an Australian industry: In the case of goods sold for export to Australia at a price less than the fair market price for home consumption or at a price which is less than a reasonable price a special dumping duty shall be collected equal to the difference between the price at which the goods were sold and a fair market price. Similar provision is made for goods consigned to Australia for sale. With regard to goods exported to Australia at rates of freight less than the rates prevailing at the time of shipment, there shall be collected a dumping freight duty equal to 5 per cent. of the fair market value of the goods at the time of shipment. Special duties are also proposed in the case of goods imported from countries whose currency is depreciated. Provision is also made for the protection of the trade of the United Kingdom in the Australian market from depreciated foreign currency.

30. **Customs Tariff (New Zealand Preference) Act 1922 (No. 3 of 1922).**—"An Act relating to Preferential Duties of Customs on Goods the produce or manufacture of New Zealand," ratifies a reciprocal Tariff agreement with New Zealand.

31. **Meat Export Bounties Act 1922.**—Provides for the payment of a bounty of $\frac{1}{4}$ d. per lb. on beef slaughtered on or after the 5th April, 1922, which is placed in cool store on or before the 31st October, 1922, and exported on or before the 31st December, 1922; in the case of exports to certain prescribed eastern ports, the time for export is extended to the 31st March, 1923. A bounty is provided on canned beef equal to $\frac{1}{4}$ d. per lb. of the fresh beef from which the canned beef is produced, provided that the whole beast was bought for canning. A bounty of 10s. per head is provided on live cattle exported for slaughter on or after the 5th April, 1922, and on or before the 31st December, 1922.

§ 3. Commonwealth Trade Commissioners.

The first permanent Trade Commissioner appointed to represent the Commonwealth of Australia in a foreign country was Mr. (now Sir) Henry Yule Braddon, who was appointed in September, 1918, to represent Australia in the United States of America. In July, 1919, Mr. Braddon was succeeded by Mr. Mark Sheldon. At present Mr. D. B. Edward, the Official Secretary to the Commonwealth in New York, is acting in the capacity of Trade Commissioner. The Commissioner's office is at 61 Broadway, New York.

Early in 1921, Mr. Edward S. Little was appointed as Commonwealth Trade Commissioner in China, with offices at Shanghai and Hong Kong. On the 18th January, 1922, Mr. E. T. Sheaf was appointed Australian Trade Representative in the East, with head-quarters at Singapore.

§ 4. Method of Recording Imports and Exports.

1. **Value of Imports.**—The recorded value of goods imported from countries beyond the Commonwealth represents the amount on which duty is payable or would be payable if the duty were charged *ad valorem*. The value of goods is taken to be 10 per cent. in advance of their fair market value in the principal markets of the country whence the goods were exported, the increase being intended to represent roughly the insurance, freight and other charges to the place of landing. Section 157 of the Customs Act provides that when the invoice value of imported goods is shewn in any currency other than British currency, the equivalent value in British currency shall be ascertained according to a fair rate of exchange. Under this section it was the practice of the Department of Trade and Customs, until the 8th December, 1920, to convert on the basis of the mint par of exchange. Since the date mentioned, in consequence of a ruling of the High Court, all conversions have been based on the commercial rates of exchange. As the values for statistical purposes, as well as those for duty purposes, were based on the mint par, it follows that the recorded values of imports from countries such as France and Italy, where the pound sterling has been at a premium, were, for some time prior to December, 1920, in excess of their commercial value, whereas imports from Japan, the United States of America and other countries where sterling was at a discount, were not given their full commercial value.

2. **Value of Exports.**—The recorded value of goods exported is taken to represent the value in the principal markets of the Commonwealth in the ordinary commercial acceptance of the term. Some modification of this practice has, however, been necessary during recent years in respect of products affected by the policy of price-fixing arising from the war.

3. **Records of Past Years.**—In the years preceding federation each State independently recorded its trade, and in so doing did not distinguish other Australian States from foreign countries. As the aggregation of the records of the several States is, necessarily, the only available means of ascertaining the trade of Australia for comparison with later years, it is unfortunate that past records of values and the direction of imports were not on uniform lines, admitting of the preparation of a record for Australia as a whole. On the introduction of the Customs Act 1901, the methods of recording values were made uniform throughout the States, but it was not until September, 1903, that

a fundamental defect in the system of recording transhipped goods was remedied. Up to this date goods arriving in any Australian port for transshipment to a port in another Australian State were recorded at the latter port only, where they were ordinarily recorded as from the transshipping State, and not as an import from the oversea country.

In recording exports an analogous defect also existed in most of the States, since goods despatched from one Australian State for transshipment in another State to an oversea country were simply recorded in the former as an export to the transshipping State; thus no proper record of the export oversea was made. Owing to this defect the oversea trade prior to September 1903 is understated by an amount which it is impossible to estimate accurately, since it varies with the development of the shipping facilities of the States concerned. To discover the direction of the transhipped trade is not possible. The figures presented in the tables hereinafter are therefore the values as recorded, and must be taken as subject to the defects explained.

Prior to 1903 the value of ships imported or exported was not included in the returns of trade.

4. *Ships' Stores.*—Prior to 1906 goods shipped in Australian ports on board oversea ships as ships' stores were included in the general exports. From 1906, ships' stores have been specially recorded as such, and omitted from the return of exports.

The value of these stores shipped each year, distinguishing bunker coal, is shewn below :—

VALUE OF STORES SHIPPED IN AUSTRALIAN PORTS BY OVERSEA VESSELS.

Period.			Bunker Coal.	All Stores (including Coal).	Period.			Bunker Coal.	All Stores (including Coal).
			£	£				£	£
1906	..	..	575,471	875,966	1914	(1st six months)	..	533,288	771,581
1907	..	..	663,724	998,897	1914-15	..	..	829,875	1,587,757
1908	..	..	867,707	1,196,106	1915-16	..	..	719,510	1,544,872
1909	..	..	781,113	1,071,677	1916-17	..	..	748,852	1,676,116
1910	..	..	740,567	1,080,133	1917-18	..	..	632,910	1,389,291
1911	..	..	858,783	1,238,446	1918-19	..	..	857,507	1,765,367
1912	..	..	1,008,259	1,431,985	1919-20	..	..	1,487,872	2,688,371
1913	..	..	1,018,595	1,458,702	1920-21	..	..	2,027,133	3,560,648

§ 5. Oversea Trade.

1. *Total Oversea Trade.*—The following table shews the total trade of the Commonwealth with oversea countries from the earliest date for which records are available.* In consequence of the defects of record referred to in the preceding section, the results can be only approximate to the actual figures. The very marked rise and sudden fall in the value of imports during the period 1837 to 1842 were contemporaneous with heavy land speculation and a subsequent severe financial crisis. The great increase of trade in the early fifties was due to the discovery of gold. In the State of Victoria the value of imports from oversea countries increased from £500,000 in 1851 to nearly £11,000,000 in 1853, and to £13,000,000 in 1854; while in New South Wales similar imports rose from £1,390,000 in 1851 to £5,500,000 in 1854, when the total imports into the Commonwealth reached the sum of £34 13s. 10d. per head, and the total trade £56 3s. 10d. per head of the population. The rapid influx of persons anxious to share the good fortunes of these times, however, soon reduced the value of the trade per head, till, in 1858, it had declined to £31 19s. 6d. per head. The period 1867 to 1872 shewed a marked reduction in the value of trade per head. For some years prior to this period New South Wales had experienced a succession of indifferent seasons, and Victoria was suffering from a congested labour market consequent on the decline of alluvial gold-mining in that State. This congestion of the labour market during the years 1862 to 1866 gave rise to the agitation for a protective tariff to provide employment in manufactures, and in April 1866, the Tariff Act, which expressed the protective policy thenceforward adhered to in Victoria, was assented to.

* The figures given for the years 1826 to 1900 represent the annual averages for the quinquennial periods. The trade of the individual years will be found in the Official Year Book No. 7 and earlier issues.

OVERSEA TRADE OF THE COMMONWEALTH, 1826 TO 1921-22.

Period.	Recorded Value.			Value per Inhabitant.(a)						Percentage of Exports on Imports.
	Imports.	Exports.	Total.	Imports.		Exports.		Total.		
	£1,000.	£1,000.	£1,000.	£ s. d.	£ s. d.	£ s. d.				%
1826-30 ..	638	153	791	10 12 5	2 10 11	13 3 4				23.9
1831-35 ..	1,144	613	1,757	11 19 10	6 8 6	18 8 4				53.6
1836-40 ..	2,283	1,112	3,395	14 15 9	7 4 1	21 19 10				48.7
1841-45 ..	1,906	1,378	3,284	9 0 5	6 10 5	15 10 10				72.3
1846-50 ..	2,379	2,264	4,643	6 18 10	6 12 2	13 11 0				95.2
1851-55 ..	11,931	11,414	23,345	19 12 5	18 15 4	38 7 9				95.7
1856-60 ..	18,816	16,019	34,835	18 6 1	15 11 8	33 17 9				85.1
1861-65 ..	20,132	18,699	38,831	15 17 1	14 14 9	30 11 10				93.0
1866-70 ..	18,691	19,417	38,108	12 7 4	12 16 11	25 4 3				103.9
1871-75 ..	21,982	24,247	46,229	12 7 2	13 13 6	26 0 8				110.3
1876-80 ..	24,622	23,772	48,394	11 19 7	11 10 9	23 10 4				96.6
1881-85 ..	34,895	28,055	62,950	14 4 3	11 9 5	25 13 8				80.4
1886-90 ..	34,675	26,579	61,254	11 16 11	9 1 0	20 17 11				76.6
1891-95 ..	27,335	33,683	61,018	8 5 2	10 2 5	18 7 7				123.2
1896-1900..	33,763	41,094	74,857	9 5 4	11 5 6	20 10 10				121.7
1901 ..	42,434	49,696	92,130	11 3 11	13 2 2	24 6 1				117.1
1902 ..	40,676	43,915	84,591	10 11 4	11 8 3	21 19 7				108.0
1903 ..	37,811	48,250	86,061	9 14 3	12 7 10	22 2 1				127.6
1904 ..	37,021	57,486	94,507	9 7 9	14 11 7	23 19 4				155.3
1905 ..	38,347	56,841	95,188	9 11 9	14 4 1	23 15 10				148.2
1906 ..	44,745	69,738	114,483	11 0 4	17 3 6	28 3 10				155.9
1907 ..	51,809	72,824	124,633	12 11 3	17 13 2	30 4 5				140.6
1908 ..	49,799	64,311	114,110	11 17 5	15 6 8	27 4 1				129.1
1909 ..	51,172	65,319	116,491	11 19 5	15 5 7	27 5 0				127.6
1910 ..	60,014	74,491	134,505	13 14 8	17 0 10	30 15 6				124.1
1911 ..	66,968	79,482	146,450	14 18 3	17 14 0	32 12 3				118.7
1912 ..	78,159	79,096	157,255	16 16 7	17 0 7	33 17 2				101.2
1913 ..	79,749	78,572	158,321	16 12 0	16 7 2	32 19 2				98.5
First six months 1914	39,777	37,930	77,707	8 2 7	7 15 0	15 17 7				95.4
1914-15 ..	64,432	60,593	125,025	13 0 10	12 5 3	25 6 1				94.0
1915-16 ..	77,745	74,778	152,523	15 15 3	15 3 3	30 18 6				92.3
1916-17 ..	76,229	97,955	174,184	15 12 7	20 1 10	35 14 5				128.5
1917-18 ..	62,335	81,429	143,764	12 12 7	16 10 0	29 2 7				130.6
1918-19 ..	102,335	113,964	216,299	20 6 10	22 13 1	42 19 11				111.4
1919-20 ..	98,974	149,824	248,798	18 17 3	28 11 1	47 8 4				151.4
1920-21 ..	163,802	132,159	295,961	30 12 9	24 14 5	55 7 2				80.7
1921-22(b)	101,064	127,923	228,987	18 6 9	23 4 4	41 11 1				126.6

(a) Reckoned on mean population for the year. (b) Preliminary figures subject to alteration.

The graphs illustrating the movement of the oversea trade of Australia (see pages 473 and 474) show that periods of depressed trade have been recurrent at more or less regular intervals of from seven to nine years, and, measured by population, each succeeding depression since 1855 carried the trade per head lower than the preceding one, until the lowest point was reached in 1894.

The year 1892 marked the beginning of a period of acute financial stress, culminating in the commercial crisis of 1893. The collapse of these years is plainly reflected in the trade records of that period, the trade of 1894 falling to £54,028,227, a decline of no less than 26.75 per cent. in three years. In 1895 there was a slight recovery, and a continuous upward movement until 1901, when the total reached £92,130,183, or £24 6s. 1d. per head. A decline, due to drought, in the exports of agricultural, pastoral, and dairy produce, reduced the trade of 1902 to £84,591,037, but although in the next year there

was a further shrinkage in the exports of agricultural produce, the increase in the value of the exports of metals, specie, butter, and wool was so large as to effect an increase in the total. From 1902 the increase in the value of trade continued, till in 1907 it reached the amount of £124,633,280, equal to £30 4s. 5d. per inhabitant.

The imports during 1907 were, doubtless, to some extent inflated by the importation of goods in anticipation of the tariff revision of that year. Compared with 1907, the trade of 1908 shews a decline of £10,523,000, of which £8,513,000 was in the value of exports, notwithstanding an increase of £3,447,767 in the export of gold and specie. This decline in the value of exports was largely due to reduced prices ruling for wool and metals in consequence of the financial crisis in the United States during the previous year, and in lesser degree to the smaller exports of agricultural and pastoral produce, due to the unfavourable season experienced in some of the States.

The trade of 1909 per head of population was slightly more than in 1908, notwithstanding that the gold exports were less by £5,193,587. In 1910 the value of imports per head was higher than in any year since 1885, and the value of exports was—excepting in the years 1906 and 1907—the highest since 1857. The high value of exports is particularly striking when considered in conjunction with the exceptionally small exports of gold. The exports of gold, already much reduced in 1909 as compared with 1908, were in 1910 still further reduced by £4,264,363 to £4,108,783, the smallest recorded since 1892. During 1911 the exports of gold bullion and specie again increased to £11,540,782. The continued increase in the value of imports during 1912 and 1913, while the value of exports remained stationary, is referred to on page 465.

The trade of 1914–15, and subsequent years, was seriously disturbed by conditions arising from the war such as the dislocation of shipping and increased prices. The shortage of shipping was particularly marked in 1917–18, when, in order to conserve space for more essential requirements, the importation of goods which were considered to be in the nature of luxuries was prohibited or restricted.

The effect of prices on the value of exports is shewn in the "Price Levels" given above. On the basis of uniform prices the exports during the years 1914–15 to 1918–19 were less than for the years immediately preceding the war, and notwithstanding that they include accumulations of wool and wheat which could not be shipped earlier, the exports of 1919–20 were, on the basis of quantities only 11 per cent. greater than the exports during 1913, though the recorded values were 91 per cent. higher. From the figures given in the table referred to it may be seen that on a quantitative basis—*i.e.*, eliminating the effects of varying prices—the exports during 1921–22 were greater than in any previous year though per head of population they were less than in 1911.

The value of the exports during 1919–20 was sufficient to establish a very substantial balance in favour of the Commonwealth, though this balance was not actually so large as the official records would make it appear to be. This is due to the understatement of the value of imports as a result of the conversion of values on the par of exchange, whereas, their commercial values, *i.e.*, the value of exports which would be required to effect a settlement of exchange would be determined by the current commercial rates. The net result of converting values on the par of exchange is that the value of imports during 1919–20 is understated by about 7 per cent. The figures for 1920–21 are similarly defective, though in a lesser degree, as from the 8th December, 1920, values have been converted on the basis of the current rates of exchange.

During the year 1920–21, the value of imports increased in a very marked degree. This was due, in a large measure, to the fulfilment of long standing orders which it had been impossible to execute earlier. In their anxiety to replenish stocks which had become depleted during the war, and to take advantage of the free spending of soldiers' gratuities and repatriation moneys, Australian importers ordered freely, in the belief that their orders could not be satisfied immediately, but hoping to get a percentage thereof. The

trade depression in Great Britain and the cancellation of foreign orders, however, enabled manufacturers there to devote their attention to Australian orders, with the result that shipments, which it had been expected would be spread over a long period were received in quick succession. The rapidity with which the goods arrived created some difficulty in providing exchange, and the banks found it necessary to restrict credit for import business.

The decline in the value of exports during 1920-21, as compared with 1919-20 was mainly due to reduced exports of wool, at lower prices, and to smaller exports of meats, flour, hides and skins, tallow, copper, and lead. As a set-off against these items there was an increase in the exports of wheat of nearly £12,000,000, and in butter of nearly £8,000,000.

During 1921-22 the trade position was very much improved by a reduction of 38 per cent. in the value of imports accompanied by a fall in the value of exports of only 3.2 per cent as compared with the previous year.

The variations in the composition of the trade will be seen from the tables in § 8 following.

2. Alteration of Trade Year.—The desirability had long been felt of bringing the trade year into conformity with the seasons for the export of agricultural and pastoral products, but a disinclination to break the continuity of records had, hitherto, prevented the change. As it was obvious that trade itself, and not merely the records, would be seriously disturbed by the war, the time appeared to be peculiarly opportune for making the alteration. The trade returns were, therefore, closed as on the 30th June, 1914, and the new year started from the 1st July. The year 1914-15 thus includes nearly eleven months under war conditions.

3. Ratio between Exports and Imports.—The foregoing table shews the percentage of exports on imports for each year.* From this it will be seen that, with few exceptions, due to temporary dislocations of trade, prior to 1892 the balance of trade has been on the side of imports, but from 1891 to 1912 the position was reversed. The excess of imports in the earlier years represents the introduction of capital in the form of Government loans and for investment in private undertakings, and the excess of exports represents mainly the interest and profit on the earlier investments, repayment of loans to foreign bondholders, and also freight on trade, which is carried mainly by ships of the United Kingdom and foreign countries. As the introduction of new capital and the payments for interest on existing investments and for shipping and other services are continually operating in opposite directions at the same time in the statistics of trade, it follows that it is the balance only of these transactions which is reflected in the excess of imports or exports.

The marked diminution of the excess of exports is a striking feature of the trade returns for 1912. The decline in the ratio of exports to imports was due, mainly, to loans raised in London by the Governments of the various States of the Commonwealth. The proceeds of these loans, of course, swell the import returns, but, as no immediate payment beyond an instalment of interest has to be made in return, the export figures are affected to a very minor degree, until such time as the principal of the debt is repaid. The larger number of immigrants at this time, also, to some extent affected the balance of trade by the introduction of capital. The following table presents the balance of trade of the Commonwealth as shewn by the records of imports and exports for each year from 1902, and, also, the modification of these figures as affected by loans raised abroad by the Governments of the States and the Commonwealth. Owing to the circumstances of the case, the figures given must be taken as only broadly approximate to the truth.

* For individual years 1826 to 1900 see Official Year Book, No. 7, and previous issues.

EFFECT OF LOANS ON THE RECORDED BALANCE OF COMMONWEALTH TRADE, 1902 TO 1921-22.

Year.	Excess of Exports as Recorded.		Net Amount of Debt Raised or Redeemed (-) Abroad.(b)	Excess of Exports Modified by Elimina- tion of Loans to Commonwealth and States' Governments.	
	Amount.	Per cent.	Amount.	Amount.	Per cent.
	£1,000.		£1,000.	£1,000.	
1902	3,239	100	5,014	8,253	100
1903	10,439	322	1,658	12,097	146
1904	20,465	632	753	21,218	257
1905	18,494	571	1,968	20,462	248
1906	24,993	771	5,308	19,685	238
1907	21,015	649	2,259	18,756	227
1908	14,512	448	6,088	20,600	249
1909	14,147	436	2,562	16,709	202
1910	14,477	447	2,904	11,573	140
1911	12,514	386	3,123	15,637	189
1912	937	29	12,205	13,142	159
1913	1,178	36	19,666	18,488	225
1914 (January to June) ..	1,847	a	a	1,847	a
1914-15	3,839	119	5,151	1,312	16
1915-16	2,966	91	2,827	139	2
1916-17	21,726	670	11,695	33,421	405
1917-18	19,095	590	17,373	36,468	442
1918-19	11,629	359	2,908	8,721	106
1919-20	50,849	1,570	5,212	56,061	679
1920-21	31,643	977	5,574	26,069	316
1921-22d	26,859	829	38,500	65,359	792

(a) Prior to June, 1914, the figures relating to debt were six months in advance of the trade figures; since that date the periods to which the figures relate are identical. (b) See note to the following table. (c) This amount should be reduced on account of conversion methods to about £49,000,000, and the corresponding percentage to about 590. (d) Preliminary figures subject to amendment.

The trade balances would be further modified by the loans of local governing bodies, by the imports of capital for private enterprises, and by the addition to or absorption of bank balances held in London on Australian account. Particulars of such transactions are, however, not available.

Since the outbreak of war the trade balances for single years have been completely upset by the difficulties of transport. Consequently, it is necessary for proper observation to take the total transactions during the seven years from the 1st July, 1914, to the 30th June, 1921.

The figures for the decade before the war shew that an annual excess of exports of about £16,000,000 was required to meet the obligations of this community on account of interest and for shipping and other services performed for it by persons outside the Commonwealth. Loans since raised in London by the States, and the loans and advances made by the Imperial Government to the Commonwealth Government, have increased this annual liability by about eight millions sterling in 1921-22; the average increase on account of each of the seven years ending June, 1921, being about £5,000,000 over the pre-war liability, which added to the pre-war liability, represents an annual liability throughout the period mentioned of about £21,000,000. Up to the end of the year 1919-20 all claims had been fully met and there was at that time some accumulation of Australian funds in London. The excessive imports during 1920-21, after allowing for new loans, left an adverse balance on the trade of that year, of £26,069,000, whereas the liabilities for the year required an excess of exports of over £22,000,000; consequently the value of exports for the year was about £48,000,000 short of the amount required to pay for the imports and to meet the standing obligations on account of interest, etc. The position with regard to exchange arising from this adverse balance of trade is indicated by the selling price of "On demand" drafts

on London, which from December, 1920, was 37s. 6d. per £100. At no time since the establishment of the Commonwealth in 1901 had the price for similar drafts been so high. In 1916, as a result of drought, and the general dislocation due to the war, the price for some months was 25s. From 1905 to the outbreak of war the price never exceeded 15s. for more than a very brief period.

The action of the banks in restricting credit for importing purposes was so effective that the imports during 1921-22 were very substantially less than in the previous year with the result that the trade of 1921-22 closed with recorded excess of exports of £26,859,000. If to this recorded excess the sum of £38,500,000—representing an approximation of new external debt—he added there will be an actual excess of exports amounting to approximately £65,359,000 which combined with the shortage of the previous year gives an average excess for the two years of £19,145,000 per year, which would appear to be somewhat short of requirements. As already stated, however, the figures given in the accompanying tables relating to new debt are restricted to the transactions of the Governments of the Commonwealth and of the States, and so do not embrace all imports of capital. During the two years referred to there were an increasing number of immigrants who were not without capital. That the Commonwealth has, now, no unsatisfied foreign obligations, is shown by the announcement of the associated banks that after the 8th September the selling price of "On demand" drafts on London will be reduced to a premium of 2s. 6d. per £100.

The general relationship between the balance of trade of the Commonwealth and the borrowing of money abroad is demonstrated by the following figures :—

COMMONWEALTH BALANCE OF TRADE AND PUBLIC DEBT, 1867 TO 1922.

Period.	Annual Average.					
	Imports.	Exports.	Recorded Excess of		New Debt. (a)	Excess of Exports modified by elimi- nation of Loans.
			Imports.	Exports.		
	Mill. £.	Mill. £.	Mill. £.	Mill. £.	Mill. £.	Mill. £.
1867-1871	17.8	20.0	..	2.2	1.7	3.9
1872-1876	23.4	24.6	..	1.2	2.6	3.8
1877-1881	25.6	24.6	1.0	..	5.2	4.2
1882-1886	35.8	26.8	9.0	..	10.6	1.6
1887-1891	35.4	29.4	6.0	..	7.4	1.4
1892-1896	25.6	33.0	..	7.4	3.8	11.2
1897-1901	36.2	44.4	..	8.2	3.2	11.4
1902-1906	39.6	55.2	..	15.6	0.8	16.4
1907-1911	56.0	71.2	..	15.2	1.3	16.5
1912-1915-16 (4½ years) ..	75.5	73.5	2.0	..	10.0	8.0
1916-17-1920-21 (5 years) ..	100.7	115.0	..	14.3	7.4	21.7(b)
1921-22	101.1	127.9	..	26.8	38.5	65.3

(a) Subsequent to 1897 these figures relate to moneys raised outside of Australia only. Prior to 1893 the amounts raised locally were insignificant, but it is probable that the amount of new debt raised during 1892-6 is somewhat overstated. Loans raised by Local Government Bodies are not included. Loans for redemption purposes are not included, nor are loans from the Imperial Government for war purposes, the proceeds of which were spent abroad, and consequently did not affect Australian imports.

(b) Adjusted to eliminate defects of conversion of import values this figure would be 20.3.

§ 6. Direction of Trade.

1. Imports according to Country of Shipment.—In previous issues of this work it has been customary to give particulars of the value of imports according to countries whence the goods were shipped to Australia and, also, according to the countries where the goods were produced or manufactured. The records according to countries of shipment have been discontinued, and, in future the country of origin, only, will be shewn.

2. Imports according to Country of Origin.—The following table shows the value of the imports stated to be the produce or manufacture of the countries named. From

the accompanying table of percentages the relative proportions of the import trade of the Commonwealth, which have been supplied by the various countries, may be readily seen, together with the proportions furnished by the British Empire and by foreign countries respectively.

**IMPORTS INTO THE COMMONWEALTH FROM VARIOUS COUNTRIES,
1909 TO 1920-21.**

Country of Origin.	Yearly Average for Quinquennial Periods.		1919-20.	1920-21.
	1909-1913.	1914-5/1918-9.		
	£	£	£	£
United Kingdom	33,894,332	32,110,652	38,516,436	76,849,934
British Possessions—				
Canada	853,754	1,736,337	2,640,280	4,425,262
Ceylon	805,892	1,218,002	1,675,443	838,340
India	2,467,513	4,645,394	4,777,905	7,312,832
New Zealand	2,436,934	2,068,993	1,930,049	1,995,897
Pacific Islands—				
Fiji	352,673	576,286	285,456	204,775
Territory of New Guinea	2,239	135,413	626,151	635,370
Other Islands	253,508	525,248	750,309	988,085
Papua	78,676	119,064	218,006	325,773
South African Union	266,332	1,691,729	964,195	534,118
Straits Settlements	189,172	294,388	354,179	284,886
Other British Possessions	268,250	360,187	1,011,737	891,150
Total British Possessions	7,974,943	13,371,041	15,233,710	18,436,488
Total British Countries ..	41,869,275	45,481,693	53,750,146	95,286,422
Foreign Countries—				
Belgium	1,000,134	97,849	276,940	1,929,647
China	410,975	656,990	1,094,427	1,034,306
France	2,104,773	1,582,135	2,422,304	3,597,811
Germany	6,061,999	449,836	13,474	56,944
Italy	530,130	632,095	581,038	828,217
Japan	835,694	4,286,960	4,222,511	5,230,039
Netherlands	401,569	310,881	196,712	613,926
Netherlands East Indies	1,102,679	1,963,900	8,313,874	8,798,957
Norway	714,407	732,851	831,909	1,920,997
Pacific Islands	274,299	163,786	262,377	152,938
Philippine Islands	118,960	163,736	204,958	209,170
Sweden	623,274	581,994	793,945	2,751,827
Switzerland	1,078,555	1,226,345	959,826	2,016,156
United States of America	8,855,091	17,050,323	23,826,313	36,113,477
Other Foreign Countries	1,230,584	1,233,564	1,223,538	3,260,992
Total Foreign Countries ..	25,343,123	31,133,245	45,224,146	68,515,404
Total	67,212,398	76,614,938	98,974,292	163,801,826

NOTE.—From the 30th June, 1914, the Trade Year was changed from the Calendar Year to agree with the Financial Year, consequently, there is a hiatus of six months between the two quinquennial periods shown in the table.

3. Imports from the more Important Countries.—In the following paragraphs the imports from the more important countries are briefly reviewed. Space will not permit of any fuller treatment of the subject in this Year Book, but, all available information may be found in the annual publication relating to Trade and Customs and Excise Revenue of the Commonwealth, issued by the Bureau of Census and Statistics.

COMMONWEALTH IMPORTS.—PERCENTAGES OF IMPORTS FROM EACH COUNTRY ON THE TOTAL IMPORTS, 1909 TO 1920-21.

Country of Origin.	Yearly Average for Quinquennial Periods.		1919-20.	1920-21.
	1909-1913.	1914-5/1918-9.		
	per cent.	per cent.	per cent.	per cent.
United Kingdom	50.42	41.91	38.91	46.92
British Possessions—				
Canada	1.27	2.27	2.67	2.70
Ceylon	1.20	1.59	1.69	0.51
India	3.67	6.06	4.83	4.46
New Zealand	3.63	2.71	1.95	1.22
Pacific Islands—				
Fiji	0.52	0.75	0.29	0.12
Territory of New Guinea	0.00	0.13	0.63	0.39
Other Islands	0.38	0.68	0.76	0.60
Papua	0.12	0.15	0.22	0.21
South African Union	0.40	2.21	0.97	0.33
Straits Settlements	0.28	0.38	0.36	0.17
Other British Possessions ..	0.40	0.47	1.02	0.54
Total British Possessions	11.87	17.45	15.39	11.25
Total British Countries ..	62.29	59.36	54.30	58.17
Foreign Countries—				
Belgium	1.49	0.13	0.28	1.18
China	0.61	0.86	1.11	0.63
France	3.13	2.06	2.45	2.26
Germany	9.02	0.59	0.01	0.04
Italy	0.79	0.82	0.59	0.51
Japan	1.24	5.60	4.27	3.19
Netherlands	0.60	0.41	0.20	0.37
Netherlands East Indies ..	1.64	2.56	8.40	5.37
Norway	1.06	0.96	0.84	1.17
Pacific Islands	0.41	0.21	0.26	0.09
Philippine Islands	0.18	0.21	0.21	0.13
Sweden	0.93	0.76	0.80	1.68
Switzerland	1.60	1.60	0.97	1.23
United States of America ..	13.18	22.26	24.07	22.05
Other Foreign Countries ..	1.83	1.61	1.24	1.99
Total Foreign Countries ..	37.71	40.64	45.70	41.83
Total	100	100	100	100

4. Imports of United Kingdom Origin.—Although, mainly as the result of increased prices, the value of imports from the United Kingdom has increased, from an annual average of £33,894,332 for the quinquennium immediately preceding the war to £76,849,934 during the year 1920-21 or by 126 per cent., the share of the United Kingdom in the total import trade of the Commonwealth has fallen, during the same period, from 50.42 per cent. to 46.92 per cent. The results for the latest year, however, shew a very substantial recovery of the position which was lost through the war. A fuller reference to the positions of the United Kingdom and of the principal competing countries will be found in § 12 of this section. The values of the principal imports of United Kingdom origin are as follows:—

Ale and beer £155,775; apparel and textiles—apparel—blouses skirts etc. £159,318, boots and shoes, £126,399, corsets, £326,019, gloves, £220,969, hats and caps, £115,518, shirts, collars, etc., £250,431, socks and stockings, £1,277,047, trimmings, £300,446, other apparel, £1,210,484, textiles—piece goods—canvas and duck, £1,388,790, cotton—grey, unbleached, £764,096, white, bleached, £3,871,669, dyed or printed n.e.i., £8,530,697,

lace for attire, £530,220, linen n.e.i., £314,794, silk, £355,748, velvets, £227,143, woollens, £5,702,073, other piece goods, £1,832,726, sewing and embroidery silks, £1,364,666, other textiles, £2,872,167; arms, ammunition, and explosives, £1,633,444; bags, baskets, etc., £108,836; books and periodicals, £859,391; brushware, £200,289; cocoa and chocolate, £51,993; cordage, £247,695; drugs and chemicals—alkalis (soda), £512,933, cyanide of potassium, £83,086, dyes, £333,618, insecticides, etc., £48,853, medicines, £169,475, other drugs, etc., £1,265,640, earthenware, £674,585, electrical materials, £1,390,309; fancy goods, £380,615; fish, fresh and preserved, £351,197; glass, etc., £374,957; glue, gelatine, £15,185; indiarubber and manufactures, £677,556; instruments—musical, £81,476; surgical and dental, £94,190; jewellery and precious stones, £350,775; leather and manufactures, £268,779; machines and machinery—electrical, £1,087,416, machine tools, £849,189, motive power, £668,166, other, £2,141,230; metals, manufactures of—cutlery, £633,996, electrical and gas appliances, £689,384, iron and steel—pig iron, £15,077, bar, hoop, ingot, etc., £782,786, girders, beams, etc., £163,256, plate and sheet—corrugated, galvanized, £1,997,179, not corrugated, galvanized, £818,921, plain, not galvanized, £1,179,224, pipes and tubes, £1,613,732, rails, fishplates, etc., £6,466, tinned plates, plain, £3,394,911, tools of trade, £672,828, wire, £447,600, wire rope, hawsers, etc., £579,741, vehicles—bicycles, £216,634, motors, £995,920, other vehicles, £714,089, other metal manufactures, £3,866,718; mustard, £115,619; oils (not essential), £218,521, paints and varnishes, £396,645; paper, £2,168,439; photographic materials, £39,288; pickles, sauces, etc., £99,232; pipes, smoking, £219,622; soap, £33,679; spirits, £1,272,195; stationery, £505,198; tobacco, £117,370; wax matches, £73,251; yarns, £2,120,327. Total imports of United Kingdom origin, £76,849,934.

5. Imports from British Possessions.—The smaller proportion of the imports which were drawn from British Possessions during 1920–21, as compared with the immediately preceding years, was not due to any actual diminution in the value of the imports from those countries, but, was merely the result of the abnormal imports of manufactured goods of a kind which could be furnished, only, by the more highly industrial countries. In its contribution to Australian imports the most important of the British Possessions is India, and by far the most important item in the trade is jute bags. The imports from Canada shew a gradually increasing proportion and consist for the most part of highly manufactured goods of various kinds. The unusually large imports from South Africa during the quinquennium 1914–5 to 1918–9 was due to a large shipment of gold on account of the Imperial Government.

6. Principal Imports, the Produce of British Possessions, 1920–21.—

(i) *Canada.* Apparel and textiles—corsets, £182,909; boots and shoes of rubber, £112,907, other, £171,511; carbide of calcium, £2,448; cutlery, £4,247; fish, £162,249; indiarubber and manufactures (excluding boots and shoes), £251,144; iron and steel—bar, rod, etc., £13,530; agricultural implements and machinery, £425,435; other machines and machinery, £82,510; metal manufactures, £185,814; musical instruments, £41,356; paints and varnishes, £16,081; paper—printing, £980,582; wrapping, £223,089; other paper, £157,915; pipes and tubes, wrought, £149,524; timber, £285,138; motor chassis, £595,180; other vehicles, £60,069; whisky, £16,637; wire, £31,821; wood and wicker manufactures, £26,118. Total imports of Canadian origin, £4,425,262.

(ii) *Ceylon.* Cocoa and chocolate, £31,550; coir fibre, £8,128; nuts, £49,834; rubber and manufactures, £56,122; tea, £635,625. Total imports of Cingalese origin, £838,340.

For some years past the greater part of the tea imported into Australia was from Ceylon, except during 1919–20, when Java was the principal source of supply.

(iii) *Egypt.* Cigarettes, £4,335; fruits, dried, £429; gums and resins, £29,114; Total imports of Egyptian origin, £37,528.

(iv) *Fiji.* Bananas, £84,649; copra, £436; fancy goods, £1,288; hides—cattle and horse, £8,060; nuts, £5,975; sugar—produce of cane, £79,244; molasses, £18,403. Total imports of Fijian origin, £204,775.

(v) *Hong Kong.* Ginger, £1,414; oils (in bulk), £1,930; ships, £25,000. Total imports of Hong Kong origin, £43,915.

(vi) *India.* Bags and sacks, £5,198,126; hessians, £437,237; precious stones, unset, £57,539; carpets, mats, etc., £81,732; coffee and chicory, £49,783; cordage and twine, £2,465; cotton, raw, £10,133; jute, £14,438; other unmanufactured fibres, £10,747;

gums and resins, £56,133; grain—beans and peas, £4,334; linseed, £517,528; oils—castor, £7,762; linseed, £8,918; other seeds, £14,596; rice, £166,946; rubber, £12,486; skins and hides, £70,473; spices, £22,118; tea, £230,873; timber, £62,094; wax, paraffin, £103,451; yarns, £52,498. Total imports of Indian origin, £7,312,832.

(vii) *New Zealand.* Apparel and textiles, £7,214; animals—cattle, £5,717, horses, £18,985, sheep, £8,583; beans and peas, £26,775; coal, £12,241; cordage and twine, £15,690; flax and hemp fibre, £242,186; fish, £42,291; gold bullion, matte, and ore, £3,027; hops, £18,085; implements and machinery (agricultural), £3,547; other machines and machinery, £9,098; linseed, £27,192; other seeds, £55,432; meats, £17,205; milk and cream, £2,433; oakum and tow, £37,477; oats, £603; oils, etc., £25,788; skins and hides, £421,806; timber, £879,981; vegetables, £1,829. Total imports of New Zealand origin, £1,995,897.

(viii) *Papua.* Copra, £265,936; curios, etc., £4,838; gold bullion, £361; fibres, flax and hemp, £8,475; copper ore, £603; silver, £5,732; rubber, £34,367. Total imports of Papuan origin, £325,773.

(ix) *South African Union.* Bark, tanning, £18,723; explosives, £213,203; feathers, £11,857; fibres, £38,768; hides and skins, £29,803; maize, £26,783; precious stones, £155,014. Total imports of South African origin, £534,118.

(x) *Straits Settlements.* Bamboo, clouded, £12,090; pitch and tar, £89; rubber and rubber manufactures, £120,079; spices, £37,530; sago and tapioca, £54,469; timber, £5,936. Total imports of Straits Settlements origin, £284,886.

(xi) *Territory of New Guinea.* Cocoa beans, £5,507; copra, £611,101; curios, fancy goods, etc., £13,245; rubber, £3,716. Total imports being the produce of the Territory of New Guinea, £635,370.

7. *Imports from Foreign Countries.*—The most striking features regarding the proportion of imports furnished by foreign countries are the elimination of German goods and the increases from the Netherlands East Indies, from Japan, and from the United States of America. The disappearance of German trade was due, of course, to war regulations. The higher proportion from the Netherlands East Indies was mainly due to heavy imports of sugar and tea. The increased trade of Japan and of the United States is referred to in § 12.

8. *Principal Imports, the Produce of Foreign Countries, 1920-21.*—(i) *Austria.* Trade with Austria was suspended on the outbreak of war, and the prohibition of imports was not removed until the 1st August, 1922.

(ii) *Belgium.* Apparel, £41,076; textiles, £325,458; arms, £22,481; precious stones, £90,991; drugs and chemicals, £207; glass and glassware, £84,118; machinery, £11,220; metal manufacturers—iron and steel—bar, rod, etc., £157,564, hoop, £10,696, plate and sheet, £57,836; wire, plain, £116,042; wire, barbed, £11,234; chassis for motor cars, £19,557; rails, fishplates, £15,154; wheels for railways and tramways, £12,418; other metal manufactures, £48,828; paper, £100,312, yarns, £12,022. Total imports of Belgian origin, £1,929,647.

(iii) *Brazil.* Cocoa beans, £3,515; india-rubber, £160,443; nuts, £10,332; waxes £9,490. Total imports of Brazilian origin, £195,450.

(iv) *Chile.* Soda nitrate, £82,573. Total imports of Chilean origin, £85,500.

(v) *China.* Alcoholic liquors, £11,236; apparel and textiles, £396,152; bamboo, cane, etc., £20,690; cotton, raw, £11,717; drugs and chemicals, £22,395; fireworks, £9,746; fish, £17,374; fruit, £13,104; ginger, £33,185; grass straw for hats, £30,911; rice, £141,272; nuts, £46,975; oils, £49,189; tea, £40,316; tobacco, £38,979. Total imports of Chinese origin, £1,034,306.

(vi) *Czecho-Slovakia.* Buttons, buckles, etc., £4,175; fancy goods, £12,270; glassware, £7,549; hops, £16,161; iron and steel, £39,391; jewellery, £8,277; musical instruments, £3,570; silk piece goods, £4,625. Total imports of Czecho-Slovakian origin, £110,047.

(vii) *Denmark.* Ale, beer, and spirits, £5,214; cement (Portland), £43,299; rennet, £11,424; whiting, £1,670. Total imports of Danish origin, £91,125.

(viii) *France.* Apparel and textiles, £1,806,666; brushware, £24,483; cream of tartar, £217,339; tartaric acid, £1,408; fancy goods, £76,176; iron and steel ingots, etc., £10,010; jewellery, £22,210; liquorice, £10,095; musical instruments, £20,323;

oils, essential, £26,178; olive oil, £58,193; pipes, smoking, etc., £100,424; paper and stationery, £109,027; perfumery, £14,542; perfumed spirits and bay rum, £43,679; rubber tyres, £130,963; toilet preparations, £83,051; leather, £36,947; machinery, £27,857; metal manufactures, £50,064; motor cars and parts, £138,210; seeds, £10,131; spirits, £199,118; wine, £146,836. Total imports of French origin, £3,597,811.

(ix) *Germany*. The trade with Germany was suspended on the outbreak of war and importation of German goods, except by permits granted by the Minister for Trade and Customs, was not again permitted until the 1st August, 1922. Since that date German pianos, toys, cotton gloves, and some other goods have been brought under the operation of the Customs Tariff (Industries Preservation) Act 1921 (see page 460 *ante*), because it was considered that the goods concerned were being sold at a price detrimental to Australian industries, or, to the trade of the United Kingdom.

(x) *Italy*. Apparel and textiles—buttons, buckles, etc., £39,367, gloves, £38,899, hats and caps, £83,300, piece goods—silk, £63,370, other, £20,586, other apparel and textiles, £10,518; chassis for motor cars, £115,362; flax and hemp, £49,195; grass straw for hats, £11,956; liquorice, £16,397; marble and stone, £69,748; millet straw £12,694; nuts—almonds, £21,920, other, £15,565; oils—essential, £43,779; olive oil, £9,542; rubber tyres, £23,279; cream of tartar, £29,622; tartaric acid, £21,934; wines, £5,238. Total imports of Italian origin, £828,217.

(xi) *Japan*. Apparel—buttons, buckles, etc., £85,045, hats and caps, £22,418, gloves, £3,803, hosiery and knitted articles, £47,686, socks and stockings, £101,136, shirts, collars, £95,715, other, £85,902; textiles—carpets, matting, £84,859; piece goods—canvas and duck, £48,491, cotton and linen, £892,963, silk, £1,581,739, quilts, etc., £15,104, other textiles, £128,139; bags, baskets, etc., £22,360; brushware, £35,417; cable and wire, covered, £7,444; carbide of calcium, £13; cement (Portland), £81,581; chinaware, £229,956; earthenware, £32,033; fancy goods, £137,608; fibres—cotton waste, £24,077; fish, £2,362; furniture, £3,788; timber, £239,094; wicker, bamboo and cane, £7,588; wood manufactures, £6,332; glass and glassware, £285,238; grass straw for hats, £42,652; instruments, musical, £27,482; metal manufactures—cutlery, £3,811, iron and steel, £7,928, electrical appliances, £103,871, enamelled ware, £4,460, wire—iron and steel, £5,985, wire—other, £1,344, lamps and lampware, £66,881, incandescent mantles, £1,936, leaf and foil of any metal, £6,932, locks, £20,908, nails, £4,457; tinned plates and sheets, £2,354, other, £39,810; matches, £12,954; nuts, £8,721; oils and waxes, £119,996; paper, £82,616; pipes, smoking, £10,253; seeds, £7,411; stationery, £24,033; rice, £4,185; spices, £5,172; sulphur, £12,034; tea, £6,680; yarns, £5,379; vegetables, £652. Total imports of Japanese origin, £5,230,039.

Further reference is made on a later page to the imports from Japan.

(xii) *Netherlands*. Cocoa and chocolate, £16,202; piece goods—cotton and linen, £29,616, woollen, £35,124, other, £6,990; precious stones, £77,846; drugs and chemicals, £14,824; electrical appliances, £100,525; spirits, £89,723; paper—printing, £123,976, strawboard, £22,296, other paper, £7,948. Total imports of Netherlands origin, £613,926.

(xiii) *Netherlands East Indies*. Bananas, £14,146; coffee and chicory, £31,400; drugs and chemicals, £15,367; fibres—kapok, £204,890, other, £32,012; hides, cattle, £13,125; nuts, £6,242; oils—kerosene, £262,002, lubricating mineral, £11,267, petroleum spirit, £2,316,517, residual oil, £377,151, turpentine substitutes, £78,167, other oils, £3,712, waxes, £10,629; rubber, crude, £105,854; sago and tapioca, £21,208; seeds, £9,058; tobacco, £104,514; tea, £563,343; sugar, £4,516,374; spices, unground, £26,785; timber, £28,454. Total imports of Netherlands East Indies origin, £8,798,957.

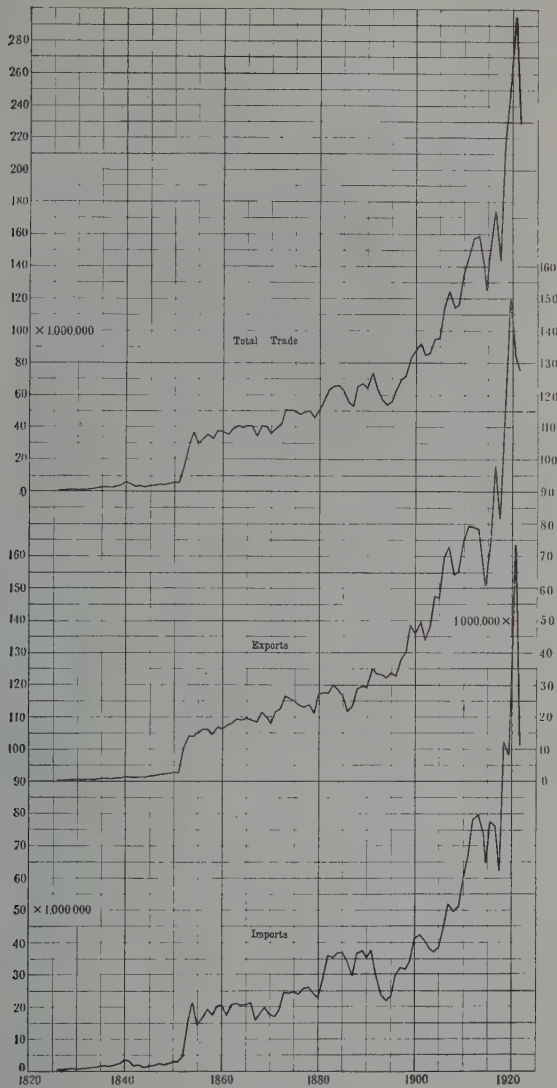
(xiv) *New Caledonia*. Copra, £14,697; maize, £1,802; manganese ore, £8,906; skins, £46,910; tallow, £6,354; timber, £8,687. Total imports of New Caledonian origin, £97,684.

(xv) *Norway*. Drugs and chemicals, £41,977; fish, £192,894; machinery and manufactures of metals, £8,322; matches, £12,473; paper, £814,886; timber, £811,828; wood pulp, £16,369; ferrous alloys, etc., £6,639. Total imports of Norwegian origin, £1,920,997.

(xvi) *Peru*. Sugar, £315,800. Total imports of Peruvian origin, £316,312.

(xvii) *Philippine Islands*. Flax and hemp, £140,795; cigars, £29,471; tobacco, unmanufactured, £13,221; timber, £23,941. Total imports of Philippine Islands origin, £209,170.

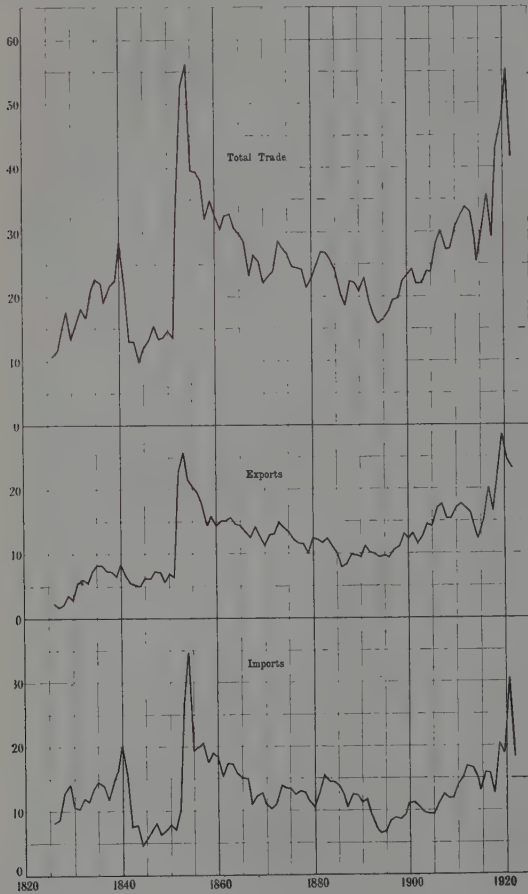
GRAPHS SHEWING VALUES OF TOTAL TRADE EXPORTS AND IMPORTS OF
COMMONWEALTH, 1826 TO 1920-21.



(See page 463.)

EXPLANATION OF GRAPHS—The base of each square represents an interval of five years, and the vertical height five million pounds sterling for Imports and Exports, and ten million pounds sterling for Total Trade.

GRAPHS SHEWING THE VALUES PER HEAD OF POPULATION OF TOTAL TRADE,
EXPORTS AND IMPORTS OF COMMONWEALTH, 1826 TO 1920-21.



((See page 463.)

EXPLANATION OF GRAPHS. The base of each square represents an interval of five years, and the vertical height £5 per head of the population.

(xviii) *Russia*. Brushware, £2,161; drugs and chemicals, £3,023; furs, £4,157; paper, £1,149; timber, £6,173. Total imports of Russian origin, £29,905.

(xix) *Spain*. Brandy, £29,219; cream of tartar, £15,139; corks, etc., £67,466; liquorice, £26,209; nuts, £13,561; olive oil, £6,897; gums, £13,739; quicksilver, £7,703; wine, £13,955. Total imports of Spanish origin, £218,142.

(xx) *Sweden*. Earthenware, glassware, etc., £9,670; calcium carbide, £3,941; cream separators, £216,712; other machines and machinery, £104,548; horseshoe nails, £30,059; primus stoves, £16,512; telephones, £27,123; tools of trade, £15,956; manufactures of metals, £269,930; Portland cement, £21,126; matches and vests, £262,370; timber, £394,827; paper, £1,353,596; wood manufactures, £32,453; wood pulp, £184,809. Total imports of Swedish origin, £2,751,827.

(xxi) *Switzerland*. Apparel and textiles—trimmings, £538,396, piece goods—silk, £374,447, lace for attire, £180,951, other, £296,373; dyes—synthetic, £75,277; other drugs and chemicals, £16,707; electrical articles, £40,560; grass straw for hats, £53,669; machinery and metal manufactures, £87,241; surgical instruments, £6,721; talking machines, £17,581; watches, £292,156. Total imports of Swiss origin, £2,016,156.

(xxii) *United States of America*. Apparel—boots, shoes, etc., £50,339, corsets, £119,477, furs, dressed, £42,554, gloves, £249,558, hats and caps, £82,070, hosiery and knitted articles, £219,911, shirts, collars, etc., £71,028, socks and stockings, £1,162,497, trimmings, £33,101, other apparel, £218,764; textiles—floor coverings, £87,044, piece goods—canvas and duck, £348,346, cotton and linen, £945,683, other, £210,525, sewing silks, £118,196, other textiles, £74,223; arms, £109,172; ammunition and explosives, £177,688; bags, baskets, etc., £66,251; brushware, £72,886; cameras, £68,682; caramel, £37,355; clocks and watches, £176,950; cocoa and chocolate, £1,877; drugs and chemicals—cream of tartar, £52,854, drugs and medicinal preparations, £110,835, dyes, £41,738, medicines, £179,052, other, £856,591; electrical materials—accumulators, £57,768, arc lamps and carbons, £78,074, cable and wire, covered, £37,183; fancy goods, £108,325; fish, £82,249; fruit, £71,525; furniture, £61,545; glass and glassware, £249,435; hops, £180,755; rubber manufactures, £768,575; jewellery and precious stones, £42,670; kinematograph films, £205,851; leather, £545,833; meats, £211,606; milk, £15,187; machines and machinery—agricultural, £379,709, cream separators, £26,406, engines, £15,221, electrical, £777,014, machine tools, £534,016, sewing, £401,782, typewriters, £158,986, other, £1,571,649; metals and manufactures—bolts, nuts, £139,738, copper, plate and sheet, etc., £10,044, cutlery, £60,886, iron and steel—bars, ingots, hoops, etc., £183,854, girders, beams, £114,375, plate and sheet—corrugated, galvanized, £46,724, not corrugated, galvanized, £55,524, plain, not galvanized, £801,595, lampware, £171,186, nails, £55,816, pipes and tubes, £558,249, telephones, £162,356, tools of trade, £617,293, wire, £1,006,027; other, £5,086,309; musical instruments, £681,162; oils, fats, and waxes—benzine and gasoline, £1,669,764, kerosene, £1,270,909, lubricating oils and greases, £1,246,966, waxes, £29,261, turpentine, £332,317; paints and varnishes, £184,698; paper—printing, £333,783, wrapping, £37,361, writing and typewriting, £110,407, other, £459,766; perfumery and toilet preparations, £119,885; resin, £176,506; seeds, £31,616; soap, £63,607; soda—carbonate, £461, caustic, £56,407; stationery, £384,661; surgical and dental instruments, £121,451; talking machines, £104,528; timber, £2,196,341; tobacco, cigars, etc., £3,362,399; vehicles—motors and parts, £2,651,257; other vehicles and parts, £443,981; wood and wicker manufactures, £376,362; yarns, £55,853. Total imports of United States origin, £36,113,477.

The imports from America are again referred to on a later page.

9. Direction of Exports.—The following tables shew that, prior to the war, a constantly decreasing proportion of Australian exports was being consigned to the United Kingdom. This was not entirely due to the relatively smaller purchases of Australian produce by the United Kingdom, but was in some measure the effect of an increasing tendency towards direct shipment of wool, skins, etc., to the consuming countries—notably to Belgium, France, and Germany—instead of distributing the trade through London as formerly. The figures given below, however, do not, even for the later pre-war years, denote the total purchases by European countries of Australian produce, as large quantities were still distributed from London. The reservation to the United Kingdom of the first call on our primary products increased the proportion of our

exports which was shipped to that country during the war period, and, to a greater extent, the proportion shipped to other parts of the Empire, notably to Egypt and to India. Large shipments of wheat to Belgium and to France during 1920-21 have caused the proportion of exports to move somewhat towards the pre-war distribution.

TRADE OF THE COMMONWEALTH WITH VARIOUS COUNTRIES, 1899 TO 1920-21.

EXPORTS (INCLUDING BULLION AND SPECIE).

Country.	Yearly Average for Quinquennial Periods.				Year 1920-21.
	1899-1903.	1904-8.	1909-13.	1914-5/1918-9.	
	£	£	£	£	£
United Kingdom ..	23,432,513	30,114,565	34,028,258	45,839,346	67,519,740
British Possessions—					
Canada ..	67,776	201,832	125,942	1,835,850	154,899
Ceylon ..	2,223,487	4,050,826	3,194,757	330,221	299,131
Egypt ..	..	..	..	23,019,571	6,607,172
Fiji ..	205,731	284,636	402,877	442,794	732,251
Hong Kong ..	403,776	747,025	741,365	654,371	866,839
India ..	2,348,420	2,828,280	2,231,306	4,492,414	2,193,006
Mauritius ..	40,425	46,378	32,424	16,650	117,554
New Zealand ..	1,432,227	2,060,900	2,385,078	3,525,124	7,780,763
Papua ..	48,720	50,174	120,401	165,559	292,851
South African Union ..	4,276,976	2,065,014	1,799,435	1,995,940	3,049,507
Straits Settlements ..	105,824	391,409	834,156	853,765	2,121,090
Other British Possessions	41,941	70,843	75,913	331,435	1,701,305
Total British Possessions	11,195,303	12,797,317	11,943,654	17,663,694	25,916,368
Total British Countries	34,627,816	42,911,882	45,971,912	63,503,040	93,436,108
Foreign Countries—					
Argentine Republic ..	25,398	40,094	126,142	22,491	7,484
Belgium ..	1,667,396	3,930,612	6,172,958	182,053	6,845,925
Chile and Peru ..	299,097	624,168	616,704	241,512	227,037
China ..	237,376	340,726	161,527	180,913	328,087
France ..	2,754,889	5,686,867	8,183,825	2,159,912	6,409,862
Germany ..	2,549,266	5,140,556	6,938,358	96,001	1,457,119
Italy ..	159,017	207,218	525,903	2,321,900	2,547,810
Japan ..	198,434	869,350	1,194,271	3,262,745	3,117,572
Netherlands ..	107,914	299,231	298,879	8,274	1,264,530
Netherlands East Indies	164,356	233,171	562,014	1,138,946	2,568,619
Norway ..	51,192	4,624	2,039	163,702	170,532
Pacific Islands ..	789,966	442,050	631,465	778,687	757,541
Philippine Islands ..	229,414	463,283	525,443	453,967	420,870
Spain ..	15,383	59,264	23,540	91,232	287,669
Sweden ..	b	4,219	4,888	146,595	136,500
United States of America	3,270,940	2,483,637	2,067,313	9,807,368	9,965,575
Other Foreign Countries..	183,210	499,050	1,375,239	1,184,577	2,210,072
Total Foreign Countries	12,653,248	21,328,120	29,410,508	22,240,875	38,722,804
Total ..	47,281,064	64,240,002	75,382,420	85,743,915	132,158,912

(a) In previous years included with "Other Foreign Countries." The amounts were—1899-1903, £31,501; 1904-8, £136,496; 1909-13, £203,073.

(b) Norway and Sweden combined for these years.

If each item be expressed as a percentage on the total export, the results will be as follows :—

COMMONWEALTH EXPORTS.—PERCENTAGES OF THE EXPORTS TO EACH COUNTRY ON THE TOTAL EXPORTS, 1899 TO 1920-21.

Country.	Yearly Average for Quinquennial Periods.				1920-21.
	1899-1903.	1904-8.	1909-13.	1914-5/1918-9.	
United Kingdom ..	per cent. 49.56	per cent. 46.88	per cent. 45.14	per cent. 53.46	per cent. 51.10
British Possessions—					
Canada	0.14	0.31	0.17	2.14	0.12
Ceylon	4.70	6.32	4.24	0.38	0.22
Egypt .. ..	..	..	..	(a) 3.52	5.01
Fiji	0.44	0.44	0.53	0.52	0.53
Hong Kong	0.85	1.16	0.98	0.76	0.65
India	4.97	4.40	2.96	5.24	1.66
Mauritius	0.09	0.07	0.04	0.02	0.09
New Zealand	3.03	3.21	3.16	4.11	5.90
Papua	0.10	0.08	0.16	0.19	0.22
South African Union ..	9.05	3.21	2.39	2.33	2.31
Straits Settlements ..	0.22	0.61	1.11	1.00	1.61
Other British Possessions	0.09	0.11	0.10	0.39	1.29
Total British Possessions	23.68	19.92	15.84	20.60	19.61
Total British Countries	73.24	66.80	60.98	74.06	70.71
Foreign Countries—					
Argentine Republic ..	0.05	0.06	0.17	0.03	0.00
Belgium	3.53	6.12	8.19	0.21	5.18
Chile and Peru	0.63	0.97	0.82	0.28	0.17
China	0.50	0.53	0.20	0.21	0.25
France	5.83	8.85	10.86	2.52	4.86
Germany	5.39	8.00	9.21	0.11	1.10
Italy	0.34	0.32	0.70	2.70	1.93
Japan	0.42	1.35	1.58	3.81	2.36
Netherlands	0.23	0.47	0.40	0.01	0.96
Netherlands East Indies	0.35	0.36	0.74	1.33	1.94
Norway	0.00(b)	0.01	0.00	0.19	0.12
Pacific Islands	1.67	0.69	0.84	0.91	0.57
Philippine Islands ..	0.49	0.72	0.70	0.53	0.32
Spain	0.03	0.09	0.03	0.11	0.21
Sweden	(b)	0.01	0.01	0.17	0.10
United States of America	6.92	3.87	2.74	11.44	7.55
Other Foreign Countries..	0.38	0.78	1.82	1.38	1.67
Total Foreign Countries	26.76	33.20	39.02	25.94	29.29
Total	100	100	100	100	100

(a) See note to preceding table.

(b) Norway and Sweden combined for these years.

10. Exports to the United Kingdom.—The principal exports to the United Kingdom during the year 1920-21 were as follows :—Butter, £10,285,213 ; cheese, £476,978 ; coconut oil, £90,384 ; copra, £212,176 ; eggs, £48,328 ; eucalyptus oil, £67,793 ; fruits—apples, £365,128, other fresh, £42,817, dried, £528,540, preserved in liquid and pulped, £166,659 ; grain and pulse—beans and peas, £29,212, wheat, £16,614,972, flour, £1,375,649 ;

hair, £26,572; honey, £333; jams and jellies, £235,650; jewellery and precious stones, £80,832; lard, etc., £75,495; leather, £185,606: meat—frozen beef, £3,302,283, mutton, £595,309, lamb, £797,870; rabbits and hares, £122,969, other frozen meat, £163,660, potted meat, £56,051, meat, preserved in tins, £280,297; milk, £240,569; minerals and metals—copper—ingots, £1,999,586, ore, £13,978, lead, £571,992, tin—ingots, £339,260, zinc—concentrates, £81,734, bars, blocks, etc., £112,343, antimony, £6,565, cobalt, £20,210, molybdenite, £40,940, wolfram, £2,927: pearl shell, £218,134; silver, £22,650; silver-lead, ores and concentrates, £13,449; skins—cattle, hides, £149,861, rabbit and hare, £499,680, sheep, £1,005,711, other skins, £291,454; spirits, £137,704; stearine, £41,964; tallow, £730,127; timber, £181,521; vessels, £390,675: wine, £188,159: wool—greasy £17,253,513, scoured, £4,444,445, tops, £191,480. Total exports of Commonwealth produce to the United Kingdom, £66,507,778.

11. **Principal Exports to British Possessions, 1920-21.**—(i) *Canada.* Dried fruits £3,550; hides and skins—sheep, £17,826, other, £14,158; jams and jellies, £2,433; meats—sausage casings, £1,905, other, £1,180: wool, including tops, £79,583. Total exports of Commonwealth produce to Canada, £139,068.

(ii) *Ceylon.* Butter, £29,829; coal, £22,312; flour, £11,691; jams and jellies, £11,258; lard, £10,641; meats, £52,482; milk, £2,078; precious stones, £8,603; timber, £3,685; gold specie, £99,063. Total export of Commonwealth produce to Ceylon, £290,598.

(iii) *Egypt.* Butter, £42,667; coal, £107,430; flour, £1,572,243; fruits preserved in liquid, £1,455; jams and jellies, £2,952; leather, £4,116; meats—frozen—beef, £207,643, mutton, £61,797, other, £7,444; milk, £28,374; timber—undressed, £55,800; wheat, £4,460,287. Total exports of Commonwealth produce to Egypt, £6,606,601.

(iv) *Fiji.* Apparel and textiles—apparel, £42,695, textiles, £54,858; bags, sacks, and cordage, £13,104; beverages—non-alcoholic, £11,001; biscuits, £43,206; coal, £39,636; drugs and chemicals—fertilizers, £22,186, other, £12,954; grain, prepared—bran and pollard, £42,570, flour, £30,974; machines and machinery, £45,506; metal manufactures, £62,313; oils, fats, and waxes, £15,344; silver specie, £3,500; spirits and alcoholic liquors, £40,408; soap, £5,276; timber, undressed, £17,232; tobacco, £25,775; vehicles, £4,638; vessels, £36,750. Total exports of Commonwealth produce to Fiji, £491,019.

(v) *Hong Kong.* Butter, £62,127; coal, £13,758; precious stones, £9,621; fish, £83,941; flour, £9,364; gold specie, £198,126; leather, £59,258; meats, £54,681; milk and cream, £26,454; sandalwood, £111,730; soap, £6,861; vessels, £165,955. Total exports of Commonwealth produce to Hong Kong, £690,608.

(vi) *India.* Biscuits, £3,295; butter and cheese, £16,051; boots and shoes, £3,140; precious stones, £12,343; coal, £82,676; copper ingots, £195,510; fruits, fresh and preserved, £19,579; gold, £1,163,822; horses, £127,891; hay and chaff, £7,793; grain and pulse—wheat, £10,165; jams and jellies, £83,639; leather, £14,962; meats, £33,252; milk, £29,790; tallow, £73,687; timber, £88,650; wool, greasy, £30,064, scoured, £15,134. Total exports of Australian produce to India, £2,164,605.

(vii) *New Zealand.* Apparel and textiles, etc.—boots and shoes, £483,328, other apparel, £298,747, textiles, £208,015, bags and sacks, £11,951; bags, baskets, £38,204; cordage, £11,934; arms, ammunition, etc., £36,195; bark, tanning, £39,356; biscuits, £11,260; books and periodicals, £77,190; cameras, cinematographs and films, talking machines, etc., £47,307; photographic goods, £30,851; coal, £759,809; confectionery, £102,955; drugs and chemicals—fertilizers, £251,238, medicines, £70,295, other drugs, etc., £201,813; electrical materials, £76,157; fibres, £13,777; fodders, £5,504; fruit—fresh, £84,059, dried, £129,539, preserved in liquid, £37,357; furniture, £19,084; glass and glassware, £122,168; grain—barley, £26,849, flour, £2,519, maize, £26,740, oats, £10,878, rice, £50,386, wheat, £174,413; hides and skins, £10,654; horses, £15,289; india-rubber manufactures, £532,019; iron, bar, £166,128; jewellery, £35,858; precious stones, £83,639; lead, pig, £33,631; leather and leather manufactures, £178,710;

matches, £23,323; agricultural implements and machinery, £20,105; other machines and machinery, £253,079; other manufactures of metals, £550,075; vehicles and parts, £54,660; milk, £16,518; oils, etc., £153,215; onions, £20,748; paints, varnishes, £152,432; plants, trees and bulbs, £6,422; paper, £58,787; peel, £14,643; seeds, £19,878; sheep, £10,984; soap, £35,232; specie, silver, £3,380; spirits, £99,977; stationery, £128,019; sugar, £124,612; tea, £45,016; timber, £510,530; tin, ingots, £39,250; tobacco, £314,474; wine, £91,804; wood and wicker articles, £60,674. Total exports of Australian produce to New Zealand, £6,271,739.

(viii) *Papua*. Apparel and textiles, £25,936; beans and peas, £10,933; biscuits, £4,328; butter, £4,983; coal, £1,915; fish, £3,314; flour, £12,269; machinery and manufactures of metal, £58,180; meats, £12,747; oils, etc., £18,587; rice, £8,333; sugar, £8,176; timber, £14,261; tobacco, £24,504. Total exports of Australian produce to Papua, £163,449.

(ix) *South African Union*. Animals—sheep, breeding, £119,557; bags, baskets, £10,057; butter, £1,517; cheese, £616; boots and shoes, £102,917; apparel, other, £21,460; cordage and twine, reaper and binder, £946; other, 33,664; fruits—dried, £12,118; grain—wheat, £593,432, flour, £999,340; infant's food, £33,378; jams and jellies, £10,108; lard, £9,204; leather, £77,494; machinery and manufactures of metal, £67,275; malt, £36,916; meats, preserved, in tins, £12,254; milk and cream, £248,555; rails, fishplates, etc., £27,013; seeds, £3,155; soap, £29,297; tallow, unrefined, £98,973; timber, £357,261. Total exports of Commonwealth produce to South African Union, £3,025,402.

(x) *Straits Settlements*. Biscuits, £17,728; butter, £78,856; cheese, £9,074; confectionery, £10,118; coal, £192,328; fruits, fresh and preserved, £14,838; gold, specie, £264,166; grain, flour, £186,268; infants and invalids' foods, £8,066; iron and steel, bar, etc., £1,314; jams and jellies, £7,890; leather, £38,616; living animals, £18,795; machines and machinery—mining, £23,419, other, £142,489; meats, £182,945; milk and cream, £669,134; rails, fishplates, £63,985; sandalwood, £35,191; soap, £14,869. Total exports of Commonwealth produce to Straits Settlements, £2,057,033.

(xi) *Territory of New Guinea*. Ale, beer, £50,029; apparel, £31,703; biscuits, £4,698; textiles, £69,573; fibres, £759; fish, £10,767; machinery and manufactures of metals, £72,756; meats, £25,919; oils, £37,609; rice, £45,896; silver, specie, £29,720; tobacco, £44,837. Total exports of Commonwealth origin to Territory of New Guinea, £268,747.

12. Principal Exports to Foreign Countries, 1920-21 :—

(i) *Argentine Republic*. Agricultural implements and machinery, £1,654; seeds, £458; wood manufactures, £1,016. Total exports of Commonwealth produce to Argentine Republic, £7,462.

(ii) *Austria*. The Proclamation prohibiting exports to Austria during the war was revoked on the 2nd December, 1920. During 1920-21 wool valued at £178,552 was exported to Austria.

(iii) *Belgium*. Copra, £25,980; grain—barley, £171,846, wheat, £3,221,609, flour, £23,393; hides and skins, £60,178; silver and silver lead ore, £31,324; tallow, £84,944; wool—greasy, £1,289,729, scoured, £1,090,790; zinc—blocks, etc., £18,800, concentrates, £142,762. Total exports of Commonwealth produce to Belgium, £6,805,840.

(iv) *Chile*. Coal, £196,741; coke, £9,181. Total exports of Commonwealth produce to Chile, £206,852.

(v) *China*. Butter, £91,173; coal, £10,251; copper ingots, £16,954; flour, £1,440; jams and jellies, £28,306; leather, £28,261; bacon and hams, £15,837; other meats, £16,115; sandalwood, £39,798; tallow, £3,706; timber, £39,682; tin—ingots, £2,538. Total exports of Australian produce to China, £316,831.

(vi) *France*. Precious stones, £67,153; barley, £74,189; copra, £29,634; copper—ingots, £5,000; ores, £47,924; meats, £15,503; hides and skins, £128,078; tallow, unrefined, £3,775; wheat, £4,650,639; wool, £1,357,358. Total exports of Commonwealth produce to France, £6,374,554.

(vii) *Germany*. The Proclamation prohibiting exports to Germany during the war was revoked on the 2nd December, 1920. During 1920–21 Australian produce was exported to Germany, the principal items being—wheat, £1,450,102; wool, £364,196; hides, £21,312.

(viii) *Italy*. Copra, £20,437; hides and skins, £63,418; fur, hatters, £21,507; tallow, £93,281; meats, £71,852; wheat, £1,081,671; wool, £1,164,280. Total exports of Commonwealth produce to Italy, £2,508,446.

(ix) *Japan*. Bark, tanning, £6,439; bones, £22,110; butter, £12,204; infants' and invalids' food, £53,499; iron and steel girders, £33,455; hoofts and horns, £12,024; glue pieces and sinews, £2,255; grain—malt, £22,318, flour, £8,603, wheat, £3,376; hides and skins, cattle, £6,405, rabbit and hare, £55,069; fur, hatters', £6,438, other skins, £144; lead, pig, £32,200; manures, £20,908; milk and cream, £14,193; pearl shell, £940; trochus shell, £41,606; specie, gold, £264,166; tallow, £247,453; wool and tops, £2,107,473. Total exports of Commonwealth produce to Japan, £3,072,668.

(x) *Netherlands*. Copra, £205,742; wheat, £930,936. Total exports of Commonwealth produce to the Netherlands, £1,056,209.

(xi) *Netherlands East Indies*. Ale and beer, £39,772; apparel, textiles, etc., £42,947; bacon and hams, £98,084, other meats, £23,698; butter, £374,628; biscuits, £89,591; cattle, £22,334; coal, £422,213; coke, £10,116; confectionery, £12,340; grain; etc.—barley, £624, flour, £344,480, oats, £33,518, other, £31,237; fertilizers, ammonium sulphate, £98,809; fruits, fresh, £18,076, fruit juices, £9,245; gold, specie, £203,371; lard, £14,148; horses, £15,375; jams and jellies, £17,140; leather and manufactures, £126,710; milk and cream, £198,104; machinery, mining, £857, other, £20,400. metal manufactures, iron—bar and ingots, £49,468; nails, £9,749, rails, fishplates, £2,480, vehicles, £3,331, other, £73,050; soap, £28,126; wine, £3,207. Total exports of Commonwealth produce to Netherlands East Indies, £2,529,310.

(xii) *New Caledonia*. Apparel, £17,456; textiles, £18,705; coal, £29,630; coke, £78,101; drugs and chemicals, £11,846; flour, £77,665; leather, £4,052; machinery and manufactures of metal, £31,600; oils, greases, etc., £16,440; potatoes, £5,916; sugar, £42,277; wine, £2,354; tobacco, £16,712. Total exports of Commonwealth produce to New Caledonia, £295,128.

(xiii) *Norway*. Coal, £30,707; wheat, £129,905. Total exports of Commonwealth produce to Norway, £169,464.

(xiv) *Peru*. Coal, £17,190; coke, £2,981. Total exports of Commonwealth produce to Peru, £20,174.

(xv) *Philippine Islands*. Butter, £45,002; coal, £141,488; flour, £65,270; fodder, £5,933; jams and jellies, £2,545; leather, £10,483; meats—bacon and hams, £47,936, beef, £56,032, other meats, £18,600; vegetables, £9,190. Total exports of Commonwealth produce to Philippine Islands, £419,544.

(xvi) *Sweden*. Coal, £90,512; mutton, £29,805; wool, £6,325. Total exports of Commonwealth produce to Sweden, £135,183.

(xvii) *United States of America*. Coal, £29,865; copra, £357,610, copper—ingots and matte, £202,166; eggs in shell, £21,958; fruits, dried, £100,055; hides, £97,811; iron and steel, pig, £10,526; jams and jellies, £113,242; lead, pig, £66,391; leather, £13,748; platinum, crude, £63,866; sausage casings, £133,195; oil, eucalyptus, £22,792; pearlshell, £100,087; skins—rabbit and hare, £397,297; opossum, £356,063, other, £225,479; tallow, £6,981; timber, £17,473; tin—ingots, £114,596; vessels, £98,287; wool and tops, £3,836,987; gold, specie, £3,183,340. Total exports of Commonwealth produce to United States of America, £9,284,515.

§ 8. Development of Export Trade to Eastern Countries.

1. Trade with Eastern Countries.—The following tables shew the expansion in the value of exports from the Commonwealth to Eastern countries since the inception of the Commonwealth in 1901. The principal countries concerned in this trade are China, India, Ceylon, Japan, East Indies, Philippine Islands, Straits Settlements, and Hong Kong, and the particulars given in the tables apply to these countries only.

VALUE OF PRINCIPAL ITEMS OF MERCHANDISE EXPORTED FROM THE
COMMONWEALTH TO EASTERN COUNTRIES, 1901 TO 1920-21.

Article.	1901.	1909-1913. *	1914-15- 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
Antimony .. .. .	..	100	5,665	1,313	1,099	160
Biscuits	5,960	20,611	118,949	208,495	165,584	127,573
Butter	64,838	200,107	370,979	659,743	1,066,694	700,283
Cheese	4,662	2,229	29,224	41,706	61,862	30,104
Coal	155,120	275,430	108,264	85,792	247,147	863,165
Concentrates—						
Silver and silver-lead .. .. .	..	..	22,679	..	..	..
Zinc .. .. .	..	180	200,201	158,557	37,310	..
Copper	39,375	54,994	302,967	280,598	729,041	212,646
Grain and Pulse—						
Wheat	46,685	74,181	460,176	1,997,299	2,389,191	13,881
Flour	135,092	609,065	823,631	1,811,476	4,057,560	628,274
Other (prepared and unprepared)	4,806	18,216	90,237	239,854	210,079	109,465
Hay, chaff, and compressed fodder	13,081	41,871	29,657	19,542	36,190	24,659
Horses	101,866	177,774	326,824	176,239	121,857	154,235
Iron and steel (unmanufactured)	74	2,111	82,391	314,776	301,612	67,961
Jams and jellies	5,708	6,620	163,932	155,377	128,688	158,092
Lead, Pig	10,454	308,492	544,817	681,473	580,724	32,701
Leather	13,197	41,757	130,847	229,695	346,510	282,738
Meats	194,071	273,962	850,168	1,581,192	526,277	587,907
Milk and cream	5,627	12,327	283,492	697,311	901,343	944,021
Pearl shell and trochus shell	20,440	410	39,634	70,007	209,657	43,880
Sandalwood	77,237	59,475	98,071	138,468	266,945	194,591
Skins, hoofs, horns, bones, sinews, tallow	16,419	79,023	220,918	464,544	947,271	439,270
Sulphate of ammonia .. .. .	..	19,780	146,425	325,793	204,759	126,639
Tin ore	4,096	298,723	134,038	..	..	2,735
Timber, undressed	79,915	319,924	39,541	5,258	29,834	151,059
Wool	56,618	539,003	2,011,103	1,481,315	2,014,820	2,161,707
Other merchandise	170,872	346,635	998,566	2,235,562	1,755,816	1,672,387
Total merchandise	1,226,213	3,783,043	8,633,446	14,111,385	17,337,870	9,730,133
Specie and gold and silver bullion	3,339,953	5,665,514	2,739,960	4,854,609	6,232,767	2,192,714
Total exports	4,566,166	9,448,562	11,373,415	18,965,994	23,570,637	11,922,847

The following tables shew the value of the principal articles exported to each of the undermentioned Eastern countries during the year 1901 and from 1909 to 1920-21 :—

VALUE OF COMMONWEALTH EXPORTS OF MERCHANDISE TO PRINCIPAL
EASTERN COUNTRIES, 1901 TO 1920-21.

Country.	1901.	1909-1913. *	1914-15- 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China	33,906	131,318	177,433	313,908	406,850	328,087
East Indies	204,315	552,935	1,143,488	2,645,840	2,878,615	2,372,881
Hong Kong	31,853	737,595	401,463	685,256	1,406,924	663,713
India and Ceylon	417,291	904,270	2,379,594	4,452,771	1,571,885	1,229,252
Japan	123,355	525,443	3,233,735	3,846,901	7,229,424	2,353,406
Philippine Islands	302,086	688,278	453,938	653,653	1,061,360	420,870
Straits Settlements	113,407	243,209	843,765	1,513,056	2,782,312	1,356,924
Total	1,226,213	3,783,043	8,633,446	14,111,385	17,337,870	9,730,133

* Annual average for the quinquennial period.

BUTTER.

Country.	1901.	1909-1913.	1914-15- 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China	1,987	23,175	43,174	56,271	89,217	91,173
East Indies ..	12,172	75,813	218,508	424,458	564,585	374,999
Hong Kong ..	8,555	22,010	23,674	28,618	66,197	62,127
India and Ceylon ..	9,696	10,353	10,136	10,168	38,485	35,922
Japan	1,504	5,680	1,758	1,170	55,126	12,204
Philippine Islands ..	21,061	34,581	23,596	48,658	91,040	45,002
Straits Settlements ..	9,863	28,495	50,133	90,400	162,044	78,856
Total ..	64,838	200,107	370,979	659,743	1,066,694	700,283

The exports of butter given above for the year 1920-21 were shipped from the several States as follows:—New South Wales, £178,568; Victoria, £452,034; Queensland, £69,649; Western Australia, £32.

COAL.

Country.	1901.	1909-1913.	1914-15- 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China .. ..	..	2,573	..	..	..	10,251
East Indies ..	43,280	80,119	39,440	31,533	73,303	422,213
Hong Kong ..	7,653	4,684	1,343	6,079	2	13,758
India and Ceylon ..	17,639	37,120	26,810	14,438	15,258	105,488
Japan	1	12	..	..	3,473	7,639
Philippine Islands ..	59,936	78,130	14,318	8,568	56,743	111,488
Straits Settlements ..	26,611	72,842	26,352	25,174	98,368	192,328
Total	155,120	275,480	108,263	85,792	247,147	863,165

These exports of coal are chiefly from New South Wales.

COPPER.

Country.	1901.	1909-1913.	1914-15- 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China .. ..	..	19,260	375	1,876	59,981	16,954
East Indies ..	..	64	..	..	1,848	2
Hong Kong ..	..	5,796	2,959	..	..	..
India and Ceylon ..	39,375	26,512	298,027	270,695	276,840	195,510
Japan .. ..	..	2,378	1,606	8,027	390,372	..
Philippine Islands ..	..	106	..	..	..	..
Straits Settlements ..	..	878	..	..	..	..
Total ..	39,375	54,994	302,967	280,598	729,041	212,466

The copper exported to the East during 1920-21 was shipped from New South Wales, £212,464; and Queensland, £2.

* Annual average for the quinquennial period.

GRAIN AND PULSE.—WHEAT.

Country.	1901.	1909-1913.*	1914-15- 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China .. ..	..	6	..	..	..	..
East Indies	9	18	15	48	57,716	173
Hong Kong .. ..	..	3	..	..	6	..
India and Ceylon	35,660	4,687	325,755	1,573,608	402,662	10,306
Japan	11,016	62,683	133,820	422,028	1,924,723	3,376
Philippine Islands .. ..	..	6,776	24	71	..	26
Straits Settlements .. ..	..	8	566	1,544	4,084	..
Total	46,685	74,181	460,180	1,997,299	2,389,191	13,881

The exports of wheat given for the year 1920-21 were shipped from the following States:—New South Wales, £52; Victoria, £13,711; South Australia, £118.

GRAIN AND PULSE.—FLOUR.

Country.	1901.	1909-1913.*	1914-15- 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China	1,147	11,416	8,507	13,873	20,183	1,440
East Indies	82,566	275,516	265,084	508,071	802,968	345,561
Hong Kong	4,489	22,793	60,591	226,971	591,734	9,364
India and Ceylon	22,275	34,367	56,761	256,337	174,562	11,768
Japan	7,206	4,387	14,043	18,743	464,922	8,603
Philippine Islands	4,046	124,960	227,201	412,642	683,698	65,270
Straits Settlements	13,363	135,626	191,496	374,839	1,319,493	186,268
Total	135,092	609,065	823,683	1,811,476	4,057,560	628,274

The flour exported during 1920-21, as above, was shipped from the several States as follows:—New South Wales, £213,313; Victoria, £219,842; Queensland, £51; South Australia, £36,344; Western Australia, £158,724.

GRAIN AND PULSE, OTHER THAN WHEAT AND FLOUR.

Country.	1901.	1909-1913.*	1914-15- 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China	43	477	1,690	5,028	474	3,365
East Indies .. ..	..	1,738	10,133	41,378	67,689	65,209
Hong Kong	777	76	1,515	5,663	6,760	5,426
India and Ceylon	3,033	8,708	18,759	25,532	17,222	6,804
Japan	7	58	47,854	191,767	106,499	22,346
Philippine Islands	946	6,151	5,317	7,518	2,326	2,454
Straits Settlements .. ..	..	1,008	4,969	12,968	9,109	3,861
Total	4,806	18,216	90,237	289,854	210,079	109,465

The exports given above for 1920-21 were shipped from the following States:—New South Wales, £6,660; Victoria, £70,626; Queensland, £1; South Australia, £593; Western Australia, £31,585.

* Annual average for the quinquennial period.

HAY AND CHAFF, AND COMPRESSED FODDER.

Country.	1901.	1909-1913.*	1914-15- 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China	2,934	174	..	..	..	65
East Indies	14	1,285	843	1,655	3,420	2,413
Hong Kong	28	556	691	1,596	1,191	1,783
India and Ceylon	5,848	13,463	18,633	4,874	13,881	10,547
Japan	57	150	51	135	67	540
Philippine Islands	2,582	21,774	7,339	8,168	12,601	5,983
Straits Settlements	1,618	4,469	2,137	3,114	5,030	3,328
Total	13,081	41,871	29,694	19,542	36,190	24,659

The exports given above for the year 1920-21 were shipped from the several States as follows:—New South Wales, £177; Victoria, £20,843; Queensland, £200; South Australia, £14; Western Australia, £3,425.

HORSES.

Country.	1901.	1909-1913.*	1914-15- 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China	4,460	274	..	..	250	140
East Indies	2,105	16,845	5,750	18,336	14,464	15,375
Hong Kong	775	345	16	80	50	..
India and Ceylon	78,723	137,810	315,351	146,758	86,801	128,611
Japan	100	1,904	1,145	1,350	1,770	3,025
Philippine Islands	190	7,116	1,052	3,800	3,330	678
Straits Settlements	15,513	13,480	3,510	5,915	15,192	6,406
Total	101,866	177,774	326,824	176,239	121,857	154,235

The horses exported to the above countries during 1920-21 were shipped from the following States:—New South Wales, £31,109; Victoria, £35,809; Queensland, £76,266; South Australia, £8,096; Western Australia, £2,955.

LEAD, PIG.

Country.	1901.	1909-1913.*	1914-15- 1918-19.*	1918-19.	1919-20.	1920-21
	£	£	£	£	£	£
China	6,102	35,269	25,488	30,672	30,698	..
East Indies	18	363	818	2,945	463	128
Hong Kong	1,257	69,159	94,128	77,426	120,427	347
India and Ceylon	315	41,574	45,618	7,145	..	..
Japan	2,750	159,462	378,260	563,035	428,796	32,200
Philippine Islands	12	2,289	88	..	340	..
Straits Settlements .. ..	..	376	417	250	..	26
Total	10,454	308,492	544,817	681,473	580,724	32,701

The exports of pig lead in 1920-21 were shipped from New South Wales, £32,200; Victoria, £80; Western Australia, £421.

* Annual average for the quinquennial period.

MEATS.—PRESERVED BY COLD PROCESS.

Country.	1901.	1909-1913.*	1914-15— 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China .. ..	..	220	72	..	..	..
East Indies	98	2,507	1,809	21	1,637	7,600
Hong Kong	3,195	8,687	7,333	7,465	21,213	31,599
India and Ceylon	5,907	5,626	10,024	7,696	25,066	34,747
Japan	19	634	2	..	1,019	1,303
Philippine Islands	153,250	160,003	74,690	56,617	88,481	73,691
Straits Settlements .. ..	..	34,812	61,088	62,374	104,633	130,963
Total	162,469	212,489	155,018	134,173	242,049	279,903

The exports to the above-mentioned Eastern countries during 1920-21 of meats preserved by cold process were shipped from the following States:—New South Wales, £117,003; Victoria, £2,440; Queensland, £160,392; Western Australia, £68.

MEATS.—OTHER THAN MEATS PRESERVED BY COLD PROCESS.

Country.	1901.	1909-1913.*	1914-15— 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China	491	5,523	5,809	14,124	14,972	16,115
East Indies	15,035	14,130	24,632	52,567	73,454	114,501
Hong Kong	571	3,039	7,711	14,608	28,753	23,082
India and Ceylon	11,464	11,008	614,997	1,289,847	48,450	50,987
Japan	893	1,394	1,031	2,335	3,312	2,460
Philippine Islands	2,617	19,475	16,970	23,644	33,589	48,877
Straits Settlements	531	6,904	23,999	49,894	81,698	51,982
Total	31,602	61,473	695,149	1,447,019	284,228	308,004

The exports given above for the year 1920-21 were shipped from the following States:—New South Wales, £89,058; Victoria, £59,734; Queensland, £156,080; South Australia, £345; Western Australia, £2,787.

SANDALWOOD.

Country.	1901.	1909-1913.*	1914-15— 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China	7,905	8,814	14,208	18,767	18,307	39,798
East Indies .. ..	..	..	406	2,032	115	96
Hong Kong	53,991	42,566	67,899	92,518	174,659	111,730
India and Ceylon .. ..	..	3,836	3,664	1,588	1,860	7,736
Japan .. ..	..	..	480	1,500	482	40
Straits Settlements	15,341	4,257	11,414	22,063	71,522	35,191
Total	77,237	59,473	98,071	138,468	266,945	194,591

The exports of sandalwood in 1920-21 were shipped from New South Wales, £5,655; Queensland, £13,785; Western Australia, £175,151.

* Annual average for the quinquennial period.

SKINS, HOOFS, HORNS, BONES, SINEWS, AND TALLOW.

Country.	1901.	1909-1913.*	1914-15— 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China .. ..	..	336	30	20	1,742	5,268
East Indies ..	..	1,013	475	..	..	821
Hong Kong ..	1,234	409	603	1,247	4,633	11,728
India and Ceylon ..	2,761	9,477	8,510	11,719	167,579	75,167
Japan	11,829	66,755	209,924	447,454	772,881	345,460
Philippine Islands ..	165	510	281	18	290	117
Straits Settlements ..	430	523	1,095	4,086	146	709
Total ..	16,419	79,023	220,918	464,544	947,271	439,270

The above exports of skins, etc., in 1920-21 were shipped from the several States as follows: New South Wales, £243,302; Victoria, £109,981; Queensland, £81,546; South Australia, £4,397; Western Australia, £44.

TIN ORE.

Country.	1901.	1909-1913.*	1914-15— 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
Japan .. ..	..	..	..	..	..	..
Straits Settlements ..	4,096	298,723	134,017	..	..	2,735
Total ..	4,096	298,723	134,038	..	..	2,735

The export of tin ore to the Straits Settlements—the centre of the world's tin production—was for the purpose of treatment, and was shipped during 1920-21 from the Northern Territory. Almost all Australian tin ore is now treated in the Commonwealth.

TIMBER, UNDRESSED.

Country.	1901.	1909-1913.*	1914-15— 1918-19.*	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China	4,090	8,712	3,574	..	5,996	39,682
East Indies ..	22	708	74	..	..	3,674
Hong Kong ..	..	10,562	469	2,197	2,969	4,954
India and Ceylon ..	61,246	288,442	32,123	650	13,948	91,966
Japan	418	897	3,041	2,276	6,921	8,380
Philippine Islands ..	9,278	8,997	..	..	..	2,403
Straits Settlements ..	4,861	1,606	260	135	..	..
Total ..	79,915	319,924	39,541	5,258	29,834	151,059

The above exports of timber during 1920-21 from the several States were shipped as follows:—New South Wales, £14,712; Victoria, £152; Queensland, £217; Western Australia, £135,978.

* Annual average for the quinquennial period.

WOOL.

Country.	1901.	1909-1913. ^a	1914-15— 1918-19. ^a	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
China .. ..	..	162	..	..	..	..
East Indies	112	..	..	..	..	..
Hong Kong .. ..	..	5	..	..	..	..
India and Ceylon	7,853	22,308	59,231	78,336	..	45,198
Japan	48,653	516,528	1,951,273	1,400,192	2,010,732	2,107,473
Philippine Islands .. ..	..	..	599	2,787	4,088	9,036
Total	56,618	539,003	2,011,103	1,481,315	2,014,820	2,161,707

(a) Annual average for the quinquennial period.

The wool exported to the East by the several States during 1920-21 was shipped as follows:—New South Wales, £1,458,859; Victoria, £483,806; Queensland, £212,617; South Australia, £6,425.

§ 9. Trade of Commonwealth since Federation.

1. **Classified Summary of Australian Trade.**—The following tables present the trade of the Commonwealth arranged in classes according to the nature of the goods since the inauguration of the Commonwealth:—

STATISTICAL CLASSIFICATION OF IMPORTS AND EXPORTS.

Class.	Articles.
I.	FOODSTUFFS of animal origin but excluding living animals.
II.	FOODSTUFFS of vegetable origin.
III.	BEVERAGES (non-alcoholic), and substances used in making.
IV.	SPIRITUOUS AND ALCOHOLIC LIQUORS.
V.	TOBACCO, and preparations thereof.
VI.	LIVE ANIMALS.
VII.	ANIMAL SUBSTANCES (mainly unmanufactured), not foodstuffs.
VIII.	VEGETABLE SUBSTANCES and fibres.
IX.	(a) APPAREL; (b) TEXTILES; AND (c) MANUFACTURED FIBRES.
X.	OILS, FATS, AND WAXES.
XI.	PAINTS AND VARNISHES.
XII.	STONES AND MINERALS, used industrially.
XIII.	ORES AND METALS, unmanufactured or partly manufactured.
XIV.	(a) MACHINES and MACHINERY; (b) OTHER MANUFACTURES OF METAL.
XV.	(a) INDIARUBBER AND INDIARUBBER MANUFACTURES; (b) LEATHER AND MANUFACTURES OF LEATHER, and substitutes therefor.
XVI.	WOOD AND WICKER, raw and manufactured.
XVII.	EARTHENWARE, CEMENTS, CHINA, GLASS, AND STONWARE.
XVIII.	(a) PAPER; (b) STATIONERY.
XIX.	JEWELLERY, TIMEPIECES, AND FANCY GOODS.
XX.	OPTICAL, SURGICAL, AND SCIENTIFIC INSTRUMENTS.
XXI.	DRUGS, CHEMICALS, AND FERTILIZERS.
XXII.	MISCELLANEOUS.
XXIII.	GOLD AND SILVER; and BRONZE SPECIE.

COMMONWEALTH IMPORTS ARRANGED IN CLASSES, 1901 TO 1920-21.

Classes.	Annual Average.				1920-1921.
	1901-1903.	1904-1905.	1909-1913.	1914-15-1918-19.	
I. Animal foodstuffs, &c. ..	£ 988,856	£ 712,311	£ 885,409	£ 1,177,020	£ 1,224,099
II. Vegetable foodstuffs, &c. ..	3,769,431	1,702,919	2,925,919	4,022,721	8,733,897
III. Beverages (non-alcoholic), &c. ..	973,568	1,219,103	1,635,232	2,170,138	1,997,213
IV. Alcoholic liquors, &c. ..	1,481,061	1,318,719	1,712,009	1,493,960	2,000,248
V. Tobacco, &c. ..	647,073	646,062	889,118	1,099,573	3,841,548
VI. Live animals ..	75,051	99,131	247,027	100,742	76,382
VII. Animal substances, &c. ..	189,529	404,924	354,867	826,099	2,324,742
VIII. Vegetable substances, &c. ..	337,574	744,791	1,281,460	2,553,477	4,251,172
IX. Apparel, &c. ..	11,002,146	13,170,748	17,730,327	24,114,559	49,877,538
X. Oils, &c. ..	1,032,453	1,041,449	1,771,160	3,018,753	8,428,750
XI. Paints, &c. ..	323,583	378,840	533,954	570,006	627,333
XII. Stones, &c. ..	106,862	101,046	245,370	160,612	209,147
XIII. Ores and Metals, unmanufactured ..	1,145,808	878,026	1,493,406	1,123,048	1,509,914
XIV. Machinery and Metals, manufactured ..	7,576,311	8,931,724	15,854,262	14,199,421	39,148,721
XV. Rubber, Leather, &c. ..	530,645	1,501,435	1,501,435	1,802,306	3,277,489
XVI. Wood, &c. ..	1,558,010	1,849,229	3,028,794	2,075,254	5,948,832
XVII. Earthenware, &c. ..	747,604	719,529	1,202,949	1,181,223	3,185,157
XVIII. Paper, &c. ..	1,587,668	1,018,023	2,727,725	3,743,319	9,978,897
XIX. Jewellery, &c. ..	959,417	1,048,601	1,534,322	1,204,037	2,538,269
XX. Instruments, &c. ..	190,979	285,014	526,916	663,680	1,125,158
XXI. Drugs, &c. ..	1,543,739	1,831,693	2,377,190	3,378,667	5,587,576
XXII. Miscellaneous ..	2,292,798	2,849,614	5,185,447	3,726,612	8,881,935
XXIII. Gold and silver; and bronze specie ..	1,060,736	1,621,922	1,518,100	2,209,711	25,810
Grand Total ..	40,307,852	44,344,158	67,212,398	76,614,938	163,601,826

The exports are shewn according to the same classification, and the usual distinction is made between exports of Australian produce and re-exports.

COMMONWEALTH EXPORTS ARRANGED IN CLASSES, AND DISTINGUISHING AUSTRALIAN PRODUCE AND THE PRODUCE OF OTHER COUNTRIES, 1901 TO 1920-21.

Classes.	Annual Average.				1920-1921.
	1901-1903.	1904-1908.	1909-1913.	1914-15-1918-19.	
AUSTRALIAN PRODUCE.					
I. Animal foodstuffs, &c. ..	£ 3,321,043	£ 5,014,822	£ 8,546,155	£ 12,816,939	£ 20,980,389
II. Vegetable foodstuffs, &c. ..	2,671,745	6,211,212	10,312,256	13,406,386	43,553,525
III. Beverages (non-alcoholic), &c. ..	2,827	3,099	5,176	31,128	58,651
IV. Alcoholic liquors, &c. ..	133,487	117,871	136,031	200,269	611,300
V. Tobacco, &c. ..	6,347	51,568	72,826	145,997	369,157
VI. Live animals ..	317,775	320,374	287,447	405,887	386,296
VII. Animal substances, &c. ..	15,973,950	24,837,934	31,085,926	32,404,434	37,743,146
VIII. Vegetable substances, &c. ..	138,341	247,020	222,629	224,600	356,886
IX. Apparel, &c. ..	33,772	57,736	75,536	431,860	1,165,237
X. Oils, &c. ..	712,683	1,006,387	2,020,913	1,654,822	1,731,162
XI. Paints, &c. ..	1,434	3,167	6,023	39,581	179,834
XII. Stones, &c. ..	999,282	1,057,163	1,000,080	503,403	2,364,101
XIII. Ores and metals, unmanufactured ..	3,557,990	6,819,097	8,243,943	8,524,490	4,665,082
XVI. Machinery and metals, manufactured ..	121,519	163,301	285,674	495,278	1,303,108
XV. Rubber, Leather, &c. ..	630,388	542,334	617,904	1,413,123	1,605,043
XVI. Wood, &c. ..	695,301	944,402	1,011,771	408,936	1,471,550
XVII. Earthenware, &c. ..	11,178	24,125	14,620	46,095	224,615
XVIII. Paper, &c. ..	27,273	47,103	64,917	70,096	194,732
XIX. Jewellery, &c. ..	71,865	134,888	155,936	75,987	259,395
XX. Instruments, &c. ..	1,123	2,764	6,337	24,137	67,564
XXI. Drugs, &c. ..	125,531	198,157	282,923	657,154	914,950
XXII. Miscellaneous ..	85,545	112,846	191,061	449,540	760,025
X XIII. Gold and silver; and bronze specie ..	15,249,414	13,574,770	7,741,881	7,456,014	5,464,938
Grand Total	44,889,813	61,492,640	72,396,965	81,886,156	126,430,681

COMMONWEALTH EXPORTS ARRANGED IN CLASSES, AND DISTINGUISHING
AUSTRALIAN PRODUCE AND THE PRODUCE OF OTHER COUNTRIES,
1901 TO 1920-21—*continued.*

Classes.	Annual Average.				1920-1921.
	1901-1903.	1904-1908.	1909-1913.	1914-15- 1918-19.	
I. Animal foodstuffs, &c. ..	83,729	27,859	22,818	94,614	71,200
II. Vegetable foodstuffs, &c. ..	100,548	223,539	186,239	279,724	393,973
III. Beverages (non-alcoholic), &c. ..	52,423	63,514	80,534	151,476	80,310
IV. Alcoholic liquors, &c. ..	44,650	31,120	32,420	69,833	155,548
V. Tobacco, &c. ..	51,175	38,604	54,075	82,756	117,506
VI. Live animals ..	1,355	3,943	5,305	4,311	3,793
VII. Animal substances, &c. ..	18,258	11,172	6,356	143,866	24,466
VIII. Vegetable substances, &c. ..	21,602	15,939	32,169	199,802	1,081,602
IX. Apparel, &c. ..	192,777	199,583	198,951	414,000	803,047
X. Oils, &c. ..	44,587	49,450	47,616	92,068	126,633
XI. Paints, &c. ..	10,685	8,394	7,617	8,675	8,102
XII. Stones, &c. ..	1,821	2,229	2,102	1,433	4,912
XIII. Ores and metals, unmanufactured ..	20,854	48,963	38,225	25,044	32,084
XIV. Machinery and metals, manufactured ..	215,794	214,577	282,981	297,817	622,630
XV. Rubber, Leather, &c. ..	16,439	29,602	60,754	62,769	107,904
XVI. Wood, &c. ..	23,970	32,999	34,057	26,199	106,821
XVII. Earthenware, &c. ..	19,636	19,751	15,390	17,070	30,354
XVIII. Paper, &c. ..	52,357	56,031	81,368	70,712	114,537
XIX. Jewellery, &c. ..	63,433	54,727	107,295	35,732	173,277
XX. Instruments, &c. ..	11,369	26,223	67,011	74,459	126,795
XXI. Drugs, &c. ..	47,866	48,706	59,322	117,152	129,406
XXII. Miscellaneous ..	96,667	149,545	230,039	264,836	1,252,056
XXIII. Gold and silver; and bronze specie ..	1,196,856	1,390,893	1,342,361	1,323,390	15,275
Grand Total ..	2,393,801	2,747,363	2,995,055	3,857,758	5,728,231

TOTAL EXPORTS.

	£	£	£	£	£
I. Animal foodstuffs, &c. ..	3,404,772	5,042,681	8,568,973	12,911,553	21,051,589
II. Vegetable foodstuffs, &c. ..	2,772,293	6,434,751	10,498,545	13,686,110	43,947,498
III. Beverages (non-alcoholic), &c. ..	55,250	66,613	85,710	182,604	138,961
IV. Alcoholic liquors, &c. ..	178,137	148,991	168,451	270,102	766,848
V. Tobacco, &c. ..	57,522	90,172	126,901	228,753	486,663
VI. Live animals ..	319,130	324,317	292,752	410,195	390,089
VII. Animal substances, &c. ..	15,992,208	24,849,106	31,092,282	32,548,390	37,767,612
VIII. Vegetable substances, &c. ..	159,943	262,959	254,798	424,402	1,438,488
IX. Apparel, &c. ..	226,549	257,319	274,487	845,860	1,968,284
X. Oils, &c. ..	757,270	1,055,837	2,077,529	1,746,890	2,003,795
XI. Paints, &c. ..	12,069	11,561	13,640	48,256	187,936
XII. Stones, &c. ..	1,001,103	1,059,392	1,002,182	504,836	2,369,013
XIII. Ores and metals, unmanufactured ..	3,578,844	6,868,060	8,232,168	8,549,534	4,697,166
XIV. Machinery and metals, manufactured ..	337,313	377,878	568,655	793,095	1,925,733
XV. Rubber, Leather, &c. ..	646,827	572,436	678,658	1,475,892	1,712,947
XVI. Wood, &c. ..	724,271	977,401	1,045,828	435,135	1,578,371
XVII. Earthenware, &c. ..	30,814	43,876	30,010	63,165	254,969
XVIII. Paper, &c. ..	79,630	103,134	146,285	140,808	309,269
XIX. Jewellery, &c. ..	135,298	189,615	263,231	111,719	432,672
XX. Instruments, &c. ..	12,492	28,987	73,348	98,596	194,350
XXI. Drugs, &c. ..	173,397	246,863	342,245	774,306	1,044,856
XXII. Miscellaneous ..	182,212	262,391	421,100	714,396	2,012,081
XXIII. Gold and silver; and bronze specie ..	16,446,270	14,965,663	9,084,242	8,779,404	5,480,213
Grand Total ..	47,283,614	64,240,003	75,392,020	85,743,914	132,158,912

§ 10. Exports according to Industries.

1. **Classification of Produce.**—The following table presents an analysis of the exports of Commonwealth produce, according to the main classes of industry by which the goods were produced. In some cases in which the produce has been subjected to some initial process of manufacture, opinions may differ in regard to its classification. In preparing the following table the method adopted generally has been to credit to the primary industry those products in which the value of the primary element is appreciably the greater. Thus such commodities as flour, jams and preserved fruits, chaff and prepared fodders, etc., have been treated as the produce of agriculture; butter, cheese, preserved milk, and bacon and hams have been credited to the dairying industry; canned meats, tallow, and fellmongered skins have been credited to the pastoral industry, but leather has been classed as a product of a manufacture; minerals and metals which have been smelted or otherwise refined, but not further manufactured, have been included as the produce of mining; and sawn timber as the produce of forestry.

EXPORTS OF AUSTRALIAN PRODUCE CLASSIFIED ACCORDING TO ITS INDUSTRIAL ORIGIN.

Industrial Origin.	Yearly Average of Quinquennial Periods.					
	1906-10.		1911-1915-16.		1916-17-1920-21.	
	£	%	£	%	£	%
Agriculture	7,772,028	100	8,942,598	115	26,444,435	340
Pastoral	33,288,226	100	37,759,974	113	51,995,542	156
Dairy, Poultry and Bee-farming	3,048,923	100	3,249,961	107	7,751,122	254
Mines and Quarries ..	19,295,668	100	17,647,856	92	15,822,976	82
Fisheries	284,771	100	358,068	126	453,596	159
Forestry	1,154,638	100	941,595	82	713,787	62
Total Primary Produce ..	64,844,254	100	68,900,052	106	103,181,458	159
Manufacturing	1,738,783	100	2,543,958	146	6,921,681	398
Total	66,583,037	100	71,444,010	107	110,103,139	165

If the effects of price changes be eliminated from the above figures by the application of the export price index numbers, the relative quantitative results will be approximately as follows :—

Industrial Origin.	Yearly Average of Quinquennial Periods.					
	1906-10.		1911-1915-16.		1916-17-1920-21.	
	£	%	£	%	£	%
Agriculture	7,772,028	100	6,878,922	89	13,845,254	178
Pastoral	33,288,226	100	36,307,667	109	30,406,750	91
Dairy, Poultry and Bee-farming	3,048,923	100	2,826,053	93	4,079,538	134
Mines and Quarries ..	19,295,668	100	16,360,025	85	11,145,179	58
Fisheries	284,771	100	328,503	115	401,412	141
Forestry	1,154,638	100	855,995	74	440,610	38
Total Primary Produce ..	64,844,254	100	63,557,165	98	60,318,743	93
Manufacturing	1,738,783	100	2,312,690	133	3,605,042	207
Total	66,583,037	100	65,869,855	99	63,923,785	96

The increasing tendency to the establishment of factory processes in close proximity to the centres of primary production, in some instances by the co-operative association of the primary producers themselves, has the effect of merging closer the direct interests of primary and secondary production. Prominent cases of the kind referred to are the production of butter, preserved and dried milk, bacon and hams, canned and dehydrated fruit, jam, sugar, flax fibre. As, therefore, no sharp distinction can be made in such cases, between the primary and secondary industries, it follows that the values allocated to

these divisions, in the above table, must be taken as a general indication only of their relative importance in the export returns; for, while there is, in the primary products, some value due to factory processes, there is, on the other hand, in the manufactured products a considerable element of Australian primary produce in the raw materials from which these manufactured products were made. However, as the figures given are on the same basis throughout the period covered by the table, they indicate, with an acceptable degree of accuracy, the variations of the relative importance of the several industrial groups.

2. **Development of Industrial Groups in the Export Returns.**—From the figures given in the table it may be seen that, though relatively to the total of all exports, the produce of manufacturing is still small—representing about 6 per cent.—it has, without the influence of higher prices, slightly more than doubled during the period under review, while the exports of primary products have fallen by about 7 per cent. It may be noticed, too, that on a quantitative basis the exports of pastoral produce have declined by about 9 per cent. In connection with mines and forests the decline has been much greater, the exported produce of the former having fallen by 42 per cent. and of the latter by 62 per cent. In the pastoral group, the principal item is, of course, wool, and the decline in the exports of pastoral produce coincides with the reduction in the number of sheep in the Commonwealth. The decline in the exports of mining produce is more than accounted for by the smaller production of gold. Forestry products have never furnished a large proportion of the exports, and during the war years the exports of timber were exceptionally small, but shew a very marked increase during the years 1920–22. The exports of agricultural produce shew an increase in value of 240 per cent., and an increase in quantity of 78 per cent. Of this group wheat and flour represent about 90 per cent., and the increased volume (78 per cent.) in exports of agricultural produce was mainly due to the greater acreage under wheat together with an increased yield per acre. The exports during the latest quinquennium under review were, also, increased to some extent by the inclusion of wheat produced in the season 1915–16, which could not be exported immediately because of the shortage of shipping. The exported produce of fisheries is not an important element in the Commonwealth exports. It consists chiefly of pearl-shell, with some trochus-shell, shark fins, and sea-slug (*bêche-de-mer*), all of which are taken on the north and north-west coasts of Australia.

§ 11. Movement of Specie and Bullion.

1. **Specie and Bullion.**—The following tables shew the value of gold and silver bullion, and specie, including bronze specie, imported and exported during the years 1901 to 1920–21:—

COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND BULLION, 1901 TO 1920–21.

Items.	Annual Average.				1920-21.
	1901-1903.	1904-1908.	1909-1913.	1914-15- 1918-19.	
IMPORTS.					
Gold—Specie	£ 36,339	£ 26,515	£ 98,974	£ 52,042	£ 13
Bullion	1,080,679 ^a	1,412,807	1,166,709	1,875,287	6,736
Total	1,117,018	1,439,322	1,265,683	1,927,329	6,749
Silver—Specie	93,939	162,348	231,563	152,585	10,882
Bullion	52	9,757	4,567	34,688	2,502
Total	93,991	172,105	236,130	187,273	13,384
Bronze—Specie	6,982	10,495	15,527	14,225	11
GRAND TOTAL ..	1,217,991	1,621,922	1,517,340	2,128,827	20,144

(a) Includes gold contained in matte.

COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND BULLION,
1901 TO 1921—*continued*.

Items.	Annual Average.				1920-21.
	1901-1903.	1904-1908.	1909-1913.	1914-15-1918-19.	
EXPORTS.					
	£	£	£	£	£
Gold—Specie	10,657,061	9,166,017	5,977,965	7,293,168	5,303,423/4
Bullion	5,088,338 ^a	4,598,568 ^b	1,808,324	264,895	796
Total	15,745,399	13,764,585	7,786,289	7,558,063	5,304,219
Silver—Specie	28,905	26,409	48,580	66,206	66,687
Bullion	812,184 ^c	682,354	489,510	827,776	77,319
Total	841,089	708,763	538,090	893,982	144,006
Bronze—Specie / ..	735	2,337	217	231	515
Total—					
Australian Produce ..	15,390,368	13,085,033	6,982,406	7,128,886	5,433,465
Other Produce	1,196,855	1,390,652	1,342,190	1,323,390	15,275
GRAND TOTAL	16,587,223	14,475,685	8,324,596	8,452,276	5,448,740

(a) Includes gold contained in matte.

(b) Includes gold contained in matte up to the year 1906. The value of gold contained in matte exported during 1907 was £350,601; 1908, £761,100; 1909-13, £477,906; 1914-15-1918-19, £112,850; and 1920-21, £9,862.

(c) Includes silver contained in matte. The value of silver contained in matte exported during 1904-1908 was £267,638; 1909-1913, £281,740; 1914-15-1918-19, £214,278; and 1920-21, £21,611.

(d) Includes premium on 4,015,212 sovereigns exported.

COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND GOLD AND SILVER
BULLION FROM AND TO VARIOUS COUNTRIES, 1920 TO 1921.

Country.	Imports.			Exports.		
	Specie.	Bullion.	Total.	Specie.	Bullion.	Total.
	£	£	£	£	£	£
United Kingdom ..	2,174	2,380	4,554	1,506	3,162	4,668
Canada .. ..	..	45	45	..	..	..
Ceylon .. ..	..	..	..	99,063	..	99,063
Hong Kong .. ..	..	..	..	198,126	..	198,126
India .. ..	..	..	..	1,089,685	74,137	1,163,822
New Zealand .. ..	..	355	355	3,880	87	3,967
Pacific Islands—						
Fiji	66	..	66	6,500	56	6,556
Gilbert and Ellice Islands Colony ..	..	..	..	5,300	..	5,300
Pleasant Island (Nauru) .. ..	..	..	..	2,240	..	2,240
Solomon Islands .. ..	..	..	..	8,942	..	8,942
Territory of New Guinea	4,991	200	5,191	29,730	..	29,730
Papua .. ..	..	2,951	2,951	1,000	..	1,000
South African Union ..	..	..	..	180	656	836
Straits Settlements ..	..	..	..	264,166	..	264,166
Total British Countries ..	7,231	5,931	13,162	1,710,318	78,098	1,788,416

COMMONWEALTH IMPORTS AND EXPORTS OF SPECIE AND GOLD AND SILVER BULLION FROM AND TO VARIOUS COUNTRIES 1920 TO 1921—
continued.

Country.	Imports.			Exports.		
	Specie.	Bullion.	Total.	Specie.	Bullion.	Total.
Japan .. ..	..	..	..	264,166	..	264,166
Netherlands East Indies	3,675	..	3,675	203,371	..	203,371
Pacific Islands— New Caledonia ..	..	..	..	2,700	..	2,700
New Hebrides ..	..	..	..	6,730	..	6,730
United States of America ..	..	3,307	3,307	3,183,340	17	3,183,357
Total Foreign Countries ..	3,675	3,307	6,982	3,660,307	17	3,660,324
GRAND TOTAL	10,906	9,238	20,144	5,370,625	78,115	5,448,740

(a) Includes the premium on gold exported.

§ 12. Effects of Prices on the Values of Exports.

1. **Significance of Price in Totals.**—In comparing the value of exports from, and also imports into, any country for a series of years, the question naturally arises as to how much any variation in the aggregate value is due to fluctuations in prices, and how much to increase or decrease of actual quantities, for, in aggregates expressed only in value—the only possible method when the commodities differ—the two sources of variation are confused.

The scheme of comparison adopted has been to take an annual average, for an extended period, of the quantities of all such articles of export as are recorded by quantity, and to apply to the average quantities so obtained the average prices in each year. The quantities used to produce the following results are the averages for 19½ years, viz., from 1st January, 1897, to 30th June, 1916, which it is considered may be taken as representing the general quantitative composition or norm of the exports from the Commonwealth. The results published in issues of this work prior to No. 12, 1919, were ascertained by applying to the quantities exported during each year the average price per unit ruling in some year arbitrarily taken for the purposes of comparison as the basic year. The advantage of the method now adopted is that the results are comparable throughout, whereas under the method previously followed each year was comparable with the basic year only.

2. **Effect of Prices.**—The following table shews the values of exports as actually recorded in each year, together with the values computed on the assumption that the prices of 1901 were maintained. The table also shews the yearly “price-levels” based upon the results so ascertained.

This table obviously furnishes a measure of the influence of prices on the value of exports of each year since 1901. Column IV.—values computed on 1901 prices—represents the volume of exports (less specie and gold bullion), expressed in the common

denomination of value, and from the figures therein it will be seen that, had the prices of 1901 remained constant, the value of the exports of merchandise during the year 1921-22 for example, would have been £72,349,545 only, instead of £124,441,218—the value actually recorded. The difference between these amounts (£52,091,673) results from a rise of 72 per cent. (i.e., from 1,000 to 1,720) in the price of commodities for the period intervening between 1901 and 1921-22. A further increment to values has arisen from the premium on exported gold. During 1921-22 the premium on gold represented £521,634, or 17.6 per cent. on the standard price. Thus, on the basis of 1901 prices the total value of the exports during 1921-22 would have been £75,309,643 instead of £127,922,950 as recorded.

It will be seen from the column of "Price-Levels" that prices as indicated by the Commonwealth exports rose steadily from the beginning of the decade to the year 1907. The financial crisis in the United States of America caused a pronounced fall in the prices of 1908. Owing to the large proportion of the aggregate value of exports represented by wool and wheat, any change in the price of these commodities has a marked effect on the index-numbers for the total group of exports, and it is to their influence that the fall of prices in 1911 is mainly due.

EFFECT OF PRICES ON THE VALUE OF COMMONWEALTH EXPORTS, AND EXPORT PRICE LEVELS FOR THE PERIOD 1901 TO 1921-22.

Year.	Exports of Specie and Gold Bullion.	Other Exports.		Total Exports (including Specie and Gold Bullion).		Price- Levels.(a) Year 1901 =1,000.
		Values as Recorded.	Values Computed on Mass Prices of 1901.	Values as Recorded.	Values Computed on Mass Prices of 1901.	
I.	II.	III.	IV.	V.	VI.	VII.
	£	£	£	£	£	
1901 ..	14,347,776	35,348,396	35,348,396	49,696,172	49,696,172	1000
1902 ..	14,568,640	29,346,447	26,948,068	43,915,087	41,516,708	1089
1903 ..	18,408,702	29,841,410	25,881,535	48,250,112	44,290,237	1153
1904 ..	16,914,691	40,571,224	35,620,038	57,485,915	52,534,729	1139
1905 ..	10,977,111	45,863,924	38,219,936	56,841,035	49,197,047	1200
1906 ..	16,895,059	52,842,704	42,005,330	69,737,763	58,900,389	1258
1907 ..	10,571,263	62,252,984	47,594,024	72,824,247	58,165,287	1308
1908 ..	13,608,531	50,702,527	42,607,165	64,311,058	56,215,696	1190
1909 ..	8,390,376	56,928,460	47,718,742	65,318,836	56,109,118	1193
1910 ..	4,178,097	70,313,053	57,351,593	74,491,150	61,529,690	1226
1911 ..	11,561,639	67,920,619	58,501,825	79,482,258	70,063,464	1161
1912 ..	11,881,216	67,214,874	53,218,427	79,096,090	65,099,643	1263
1913 ..	3,164,105	75,407,664	58,455,553	78,571,769	61,619,658	1290
1914-15 ..	2,474,197	58,118,379	44,740,861	60,592,576	47,215,058	1299
1915-16 ..	10,391,019	64,387,302	40,469,705	74,778,321	50,860,724	1591
1916-17 ..	11,521,815	86,433,667	43,985,398	97,955,482	55,507,213	1965
1917-18 ..	6,483,265	74,945,956	35,962,551	81,429,221	42,445,816	2084
1918-19 ..	7,252,202	106,711,774	52,489,805	113,963,976	59,742,007	2033
1919-20 ..	5,654,909b	144,168,600	64,103,424	149,823,509	68,516,379	2249
1920-21 ..	5,371,421b	126,787,491	56,249,996	132,158,912	60,330,722	2254
1921-22c ..	3,481,732b	124,441,218	72,349,545	127,922,950	75,309,643	1720

(a) These are index-numbers for the total group of exports, excluding specie and gold bullion.

(b) Including premium on gold exported 1919-20, £1,241,954, or 28.8 per cent. on standard price; 1920-21, £1,290,695, or 32.1 per cent.; 1921-22, £521,634, or 17.6 per cent.

(c) Preliminary figures, subject to alteration.

The following table of index-numbers shews the variations in price of the different classes of goods exported, grouped according to their industrial origin:—

PRICE-LEVELS OF COMMONWEALTH EXPORTS, 1901 TO 1922.

Year.	Agricultural Produce.	Pastoral Produce.	Dairy Produce.	Mineral Produce.(a)	Miscellaneous.	All Classes.(a)
1901	1,000	1,000	1,000	1,000	1,000	1,000
1902	1,161	1,117	1,165	842	1,108	1,089
1903	1,201	1,200	944	819	1,167	1,153
1904	1,127	1,232	906	851	946	1,139
1905	1,193	1,291	995	920	920	1,200
1906	1,155	1,344	1,021	1,113	991	1,258
1907	1,184	1,403	1,044	1,148	1,035	1,308
1908	1,445	1,212	1,115	896	1,002	1,190
1909	1,461	1,219	1,031	891	1,079	1,193
1910	1,436	1,266	1,072	900	1,195	1,226
1911	1,243	1,193	1,085	944	1,227	1,161
1912	1,388	1,268	1,198	1,133	1,254	1,263
1913	1,324	1,334	1,124	1,114	1,329	1,290
1914-15 ..	1,480	1,323	1,176	1,066	1,221	1,299
1915-16 ..	1,927	1,589	1,488	1,393	1,106	1,591
1916-17 ..	1,726	2,131	1,690	1,650	1,357	1,965
1917-18 ..	1,954	2,250	1,624	1,760	1,401	2,084
1918-19 ..	1,864	2,166	1,855	1,692	1,775	2,033
1919-20 ..	2,145	2,393	2,023	1,787	2,150	2,249
1920-21 ..	3,177	2,093	2,854	1,813	2,179	2,254
1921-22 ..	2,093	1,717	1,508	1,428	1,885	1,720

(a) Excluding gold which, since February, 1919, has been exported at a premium. During the year 1919-20 the premium realized was 28.8 per cent., during 1920-21, 32.1 per cent., and during 1921-22, 17.6 per cent.

The high index-numbers for mineral produce during 1906 and 1907 reflect the world's prices for that period, when prices registered for all the principal industrial metals touched a point higher than any previously recorded for many years.

The lower index for agricultural produce exported during 1916-17 is due to the lower price registered for wheat, viz., 4s. 10d. per bushel as against 5s. 6d. per bushel for 1915-16.

Although the fall in prices which occurred during 1921-22 was general throughout all the main groups of exported commodities, it was most pronounced in the dairy produce group, the average price registered for butter in the export returns having fallen from 2s. 4½d. per lb. in 1920-21 to 1s. 3d. per lb. in 1921-22. At the same time the price of wheat fell from 9s. to 5s. 9d. per bushel.

§ 13. External Trade of Australia and other Countries.

1. **Essentials of Comparisons.**—Direct comparisons of the external trade of any two countries are possible only when the general conditions prevailing therein, and the scheme of record, are sensibly identical. For example, in regard to the mere matter of record, it may be observed that in one country the value of imports may be the value at the port of shipment, while in another the cost of freight, insurance, and charges may be added thereto. Or again, the values of imports and exports in the one may be declared by merchants, whereas in the other they may be the official prices, fixed from time to time by a commission constituted for the purpose. In later years, too, a very substantial difference in the value of imports would arise from the different methods of converting the moneys of foreign countries, i.e., from the application of current rates of exchange or of the mint par. The figures relating to the external trade of any country are also affected in varying degree by the extent to which they include transit or re-export trade. Including bullion and specie, the transit trade of Belgium, for example, represented, prior to the war, approximately 40 per cent. of the gross trade recorded;

of Switzerland, 45 per cent. ; of France, 20 per cent. ; and of the United Kingdom, 15 per cent. ; whereas in Australia the same element represents, normally, about 4 per cent., and in New Zealand even less.

2. "Special Trade" of Various Countries.—Special trade may be defined, agreeably to the practice of the British Board of Trade, as (a) imports entered for consumption in the country (as distinguished from imports for transshipment or re-export) and (b) exports of domestic products.

TRADE OF VARIOUS COUNTRIES (IMPORTS FOR HOME CONSUMPTION AND EXPORTS OF DOMESTIC PRODUCTS, INCLUDING BULLION AND SPECIE) FOR LATEST AVAILABLE YEAR.

Country.	Year ended	Trade.			Trade per Inhabitant.		
		Imports.	Exports.	Total.	Imports.	Exports.	Total.
		£1,000	£1,000	£1,000	£ s. d.	£ s. d.	£ s. d.
C'wealth of	30/6/21	156,519	126,431	282,950	28 18 6	23 7 3	52 5 9
Australia	31/12/13	76,323	75,113	151,436	15 17 11	15 12 10	31 10 9
United King-	31/12/21	979,625	703,196	1,682,821	20 14 2	14 17 3	35 11 5
dom (a)	31/12/13	671,265	525,461	1,196,726	14 11 8	11 8 4	26 0 0
Canada (a)	31/3/22	171,122	169,391	340,513	19 10 2	19 6 2	38 16 4
	31/3/14	132,019	89,915	221,934	16 13 6	11 7 2	28 0 8
New Zealand	31/12/21	42,744	42,937	85,681	35 1 4	35 4 6	70 5 10
	31/12/13	21,879	22,578	44,457	20 10 7	21 3 8	41 14 3
United States	31/12/21	640,053	1,117,098	1,757,156	6 1 1	10 11 4	16 12 5
of America	30/6/14	391,780	493,182	884,962	4 0 0	5 0 8	9 0 8
(a)							
Argentina							
Republic	31/12/20	52,416	206,208	258,624	6 6 7	24 18 2	31 4 9
Austria-							
Hungary	31/12/12	149,026	121,345	270,371	2 19 4	2 8 4	5 7 8
	31/12/21	104,367	138,166	332,533	25 8 8	18 1 7	43 10 3
Belgium	31/12/12	210,211	160,054	370,265	27 15 3	21 2 10	48 18 1
	31/12/20	124,406	107,514	231,920	4 1 7	3 10 6	7 12 1
Brazil	31/12/12	63,425	74,649	138,074	2 12 1	3 1 2	5 13 3
	31/12/21	76,762	64,948	141,710	26 6 4	21 8 5	46 14 9
Denmark(a)	31/12/12	41,954	33,940	75,894	14 19 8	12 2 5	27 2 1
	31/12/21	455,832	417,211	873,043	11 12 6	10 12 9	22 5 3
France	31/12/12	350,482	281,495	631,977	8 16 9	7 1 11	15 18 8
German							
Empire	31/12/12	541,675	447,392	989,067	8 3 9	6 15 3	14 19 0
	31/12/20	204,409	100,567	304,976	5 11 3	2 14 9	8 6 0
Italy	31/12/12	149,113	97,536	246,649	4 5 2	2 15 8	7 0 10
	31/12/21	198,785	152,463	351,251	3 11 1	2 14 5	6 5 6
Japan(a)	31/12/12	66,007	57,972	123,979	1 5 8	1 2 2	2 7 5
	31/12/20	314,717	163,412	478,129	46 8 6	24 2 2	70 10 8
Netherlands	31/12/17	92,295	43,779	136,074	35 1 4	16 12 8	51 4 0
Norway	31/12/12	28,756	18,147	46,903	11 15 9	7 8 10	19 4 7
	31/12/12	17,035	7,867	24,902	8 0 10	1 8 2	4 9 0
Portugal	31/12/21	44,315	28,061	72,376	2 2 10	1 7 1	3 9 11
Spain (a)	31/12/12	42,089	41,826	83,915	2 2 9	2 2 6	4 5 3
	31/12/21	74,006	64,131	138,137	12 14 7	11 0 7	23 15 2
Sweden (a)	31/12/12	44,095	42,257	86,352	7 17 4	7 10 10	15 8 2
	31/12/21	101,697	79,789	181,486	25 16 7	20 5 4	46 1 11
Switzerland	31/12/12	81,577	55,629	137,206	21 6 7	14 10 1	35 17 6
(a)							
Uruguay	31/12/11	9,333	8,840	18,173	7 18 6	7 10 1	15 8 7

(a) Excluding Bullion and Specie.

In the above table the figures relate, as nearly as is possible, to imports entered for consumption in the various countries quoted, and to exports of their domestic products. It is to be noted, however, that these figures do not unequivocally denote the same thing throughout, since, in the United Kingdom and other manufacturing countries, raw or partly manufactured materials are imported as for home consumption, and, after undergoing some process of manufacture or further modification, are re-exported as domestic production, and further, the statistical records of many countries do not distinguish between bullion and specie imported for the use of the particular country (home consumption) and the amount in transit, nor between the exports of that produced within the country and that re-exported. Nevertheless, a comparison of this character reveals approximately the extent of the external trade which otherwise would not be manifest. The figures relating to foreign countries have been converted on the average of the commercial rates of exchange for the years subsequent to the war.

3. **External Trade as a Measure of Prosperity.**—External trade is not necessarily a measure of the prosperity of a country. It is, for example, obvious that the external trade of a community depends not only upon the aggregate of its requirements, but also upon the extent to which it fails to supply requirements from its own resources. A community largely self-contained, for example, may have but a small external trade per head, and yet, by virtue of its capacity to produce and manufacture its own raw material, may actually enjoy greater prosperity and a higher standard of living than another country whose external trade per head is much greater. The same observation applies equally to comparisons of the trade of the same country at different periods. A young country, the industries and export trade of which are mainly connected with raw or natural products, may, for example, through internal development of diverse industries, find the growth of its external trade diminishing per head of population without necessarily suffering any real diminution in the well-being of its people. In this regard it is interesting to contrast the trade per head of say, Belgium, New Zealand, and the United States of America. Prior to the war trade per unit of population for any year was greatest in Belgium (£48 18s. 1d. in 1912), with New Zealand next (£41 14s. 3d.), whereas for the United States the trade was only £9 0s. 8d. per inhabitant. Belgium and New Zealand represent conditions almost directly opposite to one another in the scheme of industrial development, yet the trade per head of each was abnormally high in comparison with that of most other countries. The large trade of Belgium was attained by the export of the products of highly organized manufacturing industries, based on the supplies of coal and iron within the country, in exchange for the raw materials for those industries and for food. In New Zealand the circumstances are reversed, inasmuch as in that country the energies of the people are mainly applied to primary industries, the produce of which, being largely in excess of local requirements, is exported in exchange for manufactured goods. The relatively small trade per head of population of the United States, as compared with Belgium or New Zealand, does not indicate that the people of the United States are in an inferior condition, but rather that their industries are more nearly balanced, with the result that a large proportion of the requirements of the nation is supplied from within its own territory, and consequently a smaller foreign trade is sufficient to supply the fewer remaining wants of the people, or, in other words, it indicates that as a nation the United States is more nearly self-contained.

The small foreign trade per inhabitant of Japan, Spain, and Portugal is, undoubtedly, due in some measure to a lower standard of living, but to what extent this factor is responsible, and how much is due to the capacity to supply all kinds of material wants from their own resources, could be ascertained only from a consideration of the general social and industrial conditions prevailing in each country.

§ 14. Trade of the United Kingdom with Australia, compared with Competing Countries.

1. **Proportion of Trade from United Kingdom and Competing Countries.**—The failure of the United Kingdom to maintain the position formerly held in the import trade of Australia has been a matter of more than ordinary interest for some years. Since 1908, a permanent resident Commissioner, appointed by the British Board of Trade, has been established in Australia for the purpose of advising manufacturers and merchants in the United Kingdom with regard to Australian trade affairs. From the 8th August, 1907, the Commonwealth Customs Tariffs have provided special rates in favour of goods from the United Kingdom, with the object of assisting the British manufacturer to retain or improve his position in this market.

Previous issues of this Year Book have contained a table shewing, since 1886, the proportions of the imports into the Commonwealth which were shipped from the United Kingdom, Germany, and the United States respectively. The records according to "Countries of Shipment," having been discontinued—as already mentioned—references to this aspect of the trade of the Commonwealth will be restricted, in future, to the trade according to "Countries of Origin," for which accurate information is available from 1908.

It may be pointed out that there are many items of magnitude in the Commonwealth imports, such as tea, unmanufactured tobacco, petroleum products, timber, etc., which the United Kingdom could not possibly supply. Consequently, in any investigation to determine the relative position of the United Kingdom in this market, enquiries must be confined to those classes of goods which are produced in the United Kingdom. The principal of these competitive classes are shewn in the following tables :—

IMPORTS INTO THE COMMONWEALTH OF PRODUCTS OR MANUFACTURES OF THE UNITED KINGDOM, FRANCE, GERMANY, JAPAN, AND THE UNITED STATES OF AMERICA, 1908-12 TO 1920-21.

Nature of Imports.	Year.	United Kingdom.	France.	Germany.	Japan.	U.S. of America.	All Countries.
		£	£	£	£	£	£
Foodstuffs of animal origin	1908-12	239,073	4,269	8,253	5,747	242,640	862,778
	1913 ..	301,025	3,093	12,071	6,988	281,229	947,697
	1918-19	26,218	115	..	23,034	205,065	585,562
	1919-20	311,934	1,681	..	13,554	429,137	1,459,212
	1920-21	406,982	2,557	..	5,695	310,202	1,224,099
Alcoholic liquors ..	1908-12	1,039,501	295,122	85,092	905	2,370	1,618,769
	1913 ..	1,227,561	343,403	143,477	1,755	2,805	1,947,248
	1918-19	961,875	65,897	..	993	15,822	1,263,524
	1919-20	941,230	219,271	85	947	1,331	1,308,686
	1920-21	1,443,554	346,059	..	480	53	2,000,248
Apparel (including boots), textiles, etc.	1908-12	10,473,807	820,485	1,503,797	396,687	450,903	16,565,629
	1913 ..	11,920,600	960,377	1,698,283	475,954	621,954	19,559,304
	1918-19	19,880,413	912,808	42	4,810,637	4,109,844	36,237,171
	1919-20	15,801,397	1,315,034	1	2,574,280	2,906,214	26,702,771
	1920-21	32,005,480	1,807,234	55	3,209,647	4,046,592	49,877,538
Metals unmanufactured or partly manufactured (a)	1908-12	859,907	2,550	185,496	239	56,685	1,309,458
	1913 ..	1,202,514	3,674	302,466	..	108,000	1,899,846
	1918-19	305,242	2	416	22,053	335,340	772,880
	1919-20	608,121	11	..	2,353	245,125	924,366
	1920-21	987,815	11,443	11	2,577	195,007	1,509,914
Manufactures of metals (including machinery)	1908-12	8,827,472	213,358	1,498,489	3,352	2,777,564	14,220,815
	1913 ..	12,027,377	211,610	1,962,154	7,601	3,680,720	19,152,660
	1918-19	6,325,224	12,200	5,010	524,280	8,509,002	16,995,544
	1919-20	11,907,307	13,209	4,059	142,200	8,101,993	21,573,114
	1920-21	22,737,100	220,325	10,515	277,014	13,153,975	39,148,721
Paper and stationery	1908-12	1,463,233	18,665	279,868	7,902	293,820	2,547,761
	1913 ..	1,789,577	21,930	266,483	10,656	403,679	3,134,750
	1918-19	1,293,255	57,196	1,380	177,871	2,442,333	5,543,880
	1919-20	1,299,747	70,760	146	85,439	1,287,938	4,156,626
	1920-21	3,538,515	109,027	1,352	106,649	1,325,978	8,978,897
Jewellery, timepieces, and fancy goods	1908-12	532,749	133,828	263,526	17,129	152,454	1,472,740
	1913 ..	506,608	85,430	250,846	19,192	136,965	1,410,555
	1918-19	303,948	139,792	263	258,312	319,656	1,600,868
	1919-20	630,605	182,035	12	122,684	258,840	2,029,268
	1920-21	998,809	204,777	12	154,527	342,838	2,538,269
Earthenware, cements, glass, etc.	1908-12	490,818	31,081	271,406	16,220	55,039	1,067,217
	1913 ..	650,867	40,188	457,810	21,493	62,895	1,508,531
	1918-19	387,472	1,886	138	476,007	587,569	1,467,886
	1919-20	517,992	5,647	7	328,809	251,997	1,239,685
	1920-21	1,234,656	13,650	17	629,028	323,233	3,185,152
Drugs, chemicals, fertilizers	1908-12	952,744	227,744	217,554	111,498	163,631	2,242,610
	1913 ..	1,020,141	245,413	303,447	139,106	205,123	2,715,127
	1918-19	1,580,004	316,008	501	519,327	1,284,492	4,425,073
	1919-20	1,357,429	377,518	63	111,340	876,931	3,648,755
	1920-21	2,418,605	425,074	37,409	88,435	1,241,070	5,587,575
Leather and manufactures thereof and substitutes thereof, including indiarubber (excluding boots)	1908-12	472,166	59,356	221,768	1,581	324,991	1,338,033
	1913 ..	515,169	68,746	347,550	692	435,071	1,749,046
	1918-19	497,796	86,486	3	21,198	1,009,402	2,373,188
	1919-20	459,949	74,571	..	6,261	1,065,866	2,192,520
	1920-21	946,335	169,654	..	4,324	1,314,408	3,277,489
Total above-mentioned imports ..	1908-12	25,381,473	1,806,458	4,535,249	561,260	4,520,097	43,245,810
	1913 ..	31,161,430	1,983,864	5,744,587	683,437	5,946,441	54,084,764
	1918-19	31,611,447	1,592,390	5,758	6,833,712	18,113,527	71,265,876
	1919-20	33,835,771	2,280,557	4,373	3,387,867	15,425,282	65,235,003
	1920-21	66,712,851	3,309,800	49,371	4,478,376	22,253,356	117,327,902
Total imports (less bullion and specie)	1908-12	30,371,178	2,015,324	5,547,984	760,616	7,987,322	59,777,620
	1913 ..	40,943,830	2,222,631	7,029,325	950,300	10,907,512	78,196,109
	1918-19	34,568,860	1,651,833	6,556	8,203,725	27,180,656	94,867,459
	1919-20	38,514,975	2,422,304	6,848	4,222,511	23,824,255	98,914,143
	1920-21	76,845,973	3,597,811	52,432	5,230,039	36,110,081	163,781,682

(a) Mainly pig iron and bar and rod iron. Gold and silver bullion not included.

PERCENTAGE ON TOTAL COMMONWEALTH IMPORTS OF PRODUCTS OR MANUFACTURES OF THE UNITED KINGDOM, FRANCE, GERMANY, JAPAN, AND THE UNITED STATES OF AMERICA, 1908-12 TO 1920-21.

Nature of Imports.	Year.	United Kingdom.	France.	Germany.	Japan.	U.S. of America.	All Countries.
Foodstuffs of an animal origin	1908-12	31.19	0.49	0.96	0.67	28.12	100
	1913 ..	31.77	0.33	12.74	0.74	30.52	100
	1918-19	4.48	0.02	..	3.93	35.02	100
	1919-20	2.14	0.12	..	0.93	29.41	100
	1920-21	3.32	0.21	..	0.47	25.35	100
Alcoholic liquors ..	1908-12	64.22	18.23	5.26	0.05	0.15	100
	1913 ..	63.04	17.64	7.37	0.09	0.14	100
	1918-19	76.14	5.22	..	0.08	1.25	100
	1919-20	71.93	16.76	0.00	0.07	1.02	100
	1920-21	72.19	17.30	..	0.00	0.00	100
Apparel (including boots), textiles, etc.	1908-12	63.23	4.95	9.08	2.39	2.72	100
	1913 ..	60.94	4.91	8.68	2.43	3.18	100
	1918-19	54.86	2.52	0.00	13.28	11.54	100
	1919-20	59.18	4.92	0.00	9.64	10.88	100
	1920-21	64.17	3.62	0.00	6.43	8.11	100
Metals unmanufactured or partly manufactured	1908-12	65.67	0.19	14.16	0.02	4.33	100
	1913 ..	63.29	0.19	15.92	..	5.69	100
	1918-19	39.49	0.00	0.54	2.85	43.39	100
	1919-20	65.79	0.00	..	0.25	26.52	100
	1920-21	65.42	0.76	0.00	0.17	12.91	100
Manufactures of metals (including machinery)	1908-12	62.07	1.50	10.54	0.02	19.53	100
	1913 ..	62.80	1.10	10.24	0.04	19.22	100
	1918-19	37.22	0.07	0.02	3.08	50.07	100
	1919-20	55.20	0.16	0.02	0.66	37.56	100
	1920-21	58.09	0.56	0.03	0.71	33.60	100
Paper and stationery	1908-12	57.43	0.73	10.98	0.31	11.53	100
	1913 ..	57.41	0.70	8.50	0.34	12.88	100
	1918-19	23.33	1.03	0.02	3.21	44.05	100
	1919-20	31.26	1.70	0.00	2.06	30.99	100
	1920-21	39.41	1.21	0.01	1.18	14.76	100
Jewellery, timepieces, and fancy goods	1908-12	36.18	9.09	17.90	1.16	10.35	100
	1913 ..	35.92	6.06	17.77	1.36	9.71	100
	1918-19	18.99	8.73	0.02	16.14	19.97	100
	1919-20	31.08	8.97	0.00	6.05	12.76	100
	1920-21	39.35	8.07	0.00	6.09	13.51	100
Earthenware, cements, glass, etc.	1908-12	46.99	2.91	25.43	1.52	5.16	100
	1913 ..	41.49	2.56	29.19	1.37	4.01	100
	1918-19	26.40	0.13	0.01	32.43	40.03	100
	1919-20	41.78	0.46	0.00	26.52	20.82	100
	1920-21	38.74	0.43	0.00	19.74	10.14	100
Drugs, chemicals, and fertilizers ..	1908-12	42.48	10.16	9.70	4.97	7.30	100
	1913 ..	37.57	9.04	11.18	5.12	7.55	100
	1918-19	34.58	7.14	0.00	11.74	29.03	100
	1919-20	37.20	10.35	0.00	3.05	24.03	100
	1920-21	43.20	7.60	0.67	1.58	22.21	100
Leather and manufactures thereof, and substitutes therefor, including indiarubber (excluding boots)	1908-12	35.29	4.43	16.57	0.12	24.29	100
	1913 ..	29.45	3.93	19.37	0.04	24.88	100
	1918-19	20.98	3.64	0.00	0.89	42.53	100
	1919-20	20.98	3.40	0.00	0.29	48.61	100
	1920-21	28.87	5.18	..	0.01	40.11	100
Total above-mentioned articles ..	1908-12	58.69	4.18	10.49	1.30	10.45	100
	1913 ..	57.62	3.67	10.62	1.26	10.99	100
	1918-19	44.22	2.23	0.01	9.59	26.41	100
	1919-20	51.87	3.50	0.07	5.19	23.65	100
	1920-21	56.86	2.82	0.04	3.82	18.97	100
Total imports (less bullion and specie)	1908-12	50.81	3.37	9.28	1.27	13.36	100
	1913 ..	52.37	2.84	8.99	1.21	13.95	100
	1918-19	36.43	1.74	0.01	8.65	28.65	100
	1919-20	38.94	2.45	0.07	4.26	24.09	100
	1920-21	46.92	2.20	0.03	3.19	22.05	100

It also may be mentioned here that the value of the imports from the United States and from Japan during the later years are somewhat understated, inasmuch as the values have been converted from the currencies of those countries on the basis of a par of exchange, whereas the actual exchange rates were considerably in their favour. The effect of this method of conversion, except in the case of Italy, did not reach serious dimensions until the year 1919-20. This method of conversion, which was applied to values for Customs duty also, was an advantage to Japan and to the United States in the Australian market by reducing the amount of duty to be paid on goods subject to *ad valorem* rates. In consequence of using the par of exchange, the figures given in the foregoing tables, though taken from the official records, are misleading. The commercial values of the imports referred to may be ascertained by multiplying the values given by the following coefficients:—France, 0.58; Japan, 1.25; United States, 1.24; and for all countries by 1.07. The values of the imports from the United Kingdom, of course, require no alteration. Modified accordingly, the proportion of the competitive groups supplied by the United Kingdom during 1919-20 would be 48.47 per cent. instead of 51.87 per cent., and the share of France would be reduced from 3.50 per cent. to 1.89 per cent. On the other hand, the proportion from Japan would be raised from 5.19 to 6.06 per cent. and the proportion from the United States from 23.65 to 27.40 per cent. As the practice of converting import values on the par of exchange was continued until the 8th December, 1920, it follows that the figures for 1920-21 are, in some degree, defective. The data necessary to measure the defect for this year, however, are not available. Moreover, the position of the United Kingdom in the Australian market has been recovered to such a marked extent that minor defects in the records are of little consequence in the results.

From the foregoing tables it may be seen that the value of the trade for which the United Kingdom is a substantial competitor increased from £54,084,764 in 1913, to £117,327,902 in 1920-21. Of this larger amount the United Kingdom supplied 56.86 per cent. as against 57.62 per cent. of similar imports in 1913. In 1913-19 the share of the United Kingdom in this trade represented only 44.22 per cent. The share of Japan increased from 1.26 per cent. in 1913 to 9.59 per cent. in 1918-19, but fell to 3.82 per cent. in 1920-21. Not only was Japan's *proportion* of the trade less during 1920-21 than in 1918-19, but the *actual value* was less by £2,355,336, notwithstanding that the total value of the imports under consideration increased from £71,265,376 in 1918-19 to £117,327,902 in 1920-21, or, by nearly 65 per cent. Although the value of the imports of competitive goods from Japan is much less than from America, the rate of increase has been far greater—from £683,437 in 1913 to £4,478,376 in 1920-21, equal to 550 per cent. The classes of goods chiefly responsible for this increase and the amount of the increase due to each are as follows:—Apparel and textiles, £2,728,277; metal manufactures and machinery, £271,990; china and porcelain ware, £220,055; earthenware, £28,807; glass and glassware, £276,973; paper, £78,984; stationery, £17,009; fancy goods, £125,729; optical, surgical, and scientific instruments, £15,396; brushware, £17,040; matches, £12,584; electric cable and wire, covered, £7,444.

The position of the United States in this competitive trade has improved from 10.99 per cent. in 1913 to 18.97 per cent. in 1920-21, though it is much lower than in 1918-19 when it represented 26.41 per cent. In the latest pre-war year (1913), the share of the United States in the "competitive" groups was £5,946,441, or 10.99 per cent., whereas in 1920-21 it was £22,253,356, or 18.97 per cent. The following are some of the principal lines in which United States' sales to Australia during 1920-21 were increased over those of 1913, and the amount of such increases:—Apparel and textiles, £3,417,053; iron and steel, unmanufactured or partly manufactured, £77,607; manufactured metals and machinery (including vehicles), £9,477,594; glass and glassware, £194,480; indiarubber and manufactures thereof, £643,036; leather and manufactures of (excluding boots and shoes), £239,168; paper and stationery, £922,299; fancy goods, £74,385; jewellery, £34,342; drugs and chemicals, £1,043,061; ammunition and explosives, £125,755; brushware, £60,505; electrical materials, £141,237; pianos and parts thereof, £621,723; paints and varnishes, £103,712; talking machines, £73,590; yarns, £55,477.

The position of France has declined from 3.67 per cent. in 1913 to 2.82 per cent. in 1920-21, though some improvement is evident as compared with 1918-19.

From the foregoing it will be seen that the more prominent position held by the United States of America and by Japan in the Commonwealth import market in 1920-21 was not to any great extent at the expense of the United Kingdom, but, rather, represented a substitution of the trade formerly supplied by Germany.

2. Preferential Tariffs.—The Commonwealth Tariff Act of 1908 provided preferential tariff rates in favour of goods produced or manufactured in the United Kingdom. Subsequent amendments of the Tariff have extended the list of articles to which the preferential rates apply. In the schedule submitted to Parliament on the 3rd December, 1914, the extension of the number of preferential rates was very material, and was accompanied in many instances by an increase of the margin in favour of the United Kingdom. This favorable treatment of the United Kingdom was again extended in both directions by the Tariff submitted on the 25th March, 1920 (Tariff Act 1921).

On the introduction of the preferential treatment of British goods by the Commonwealth Tariff, it was required that British material or labour should represent not less than one-fourth the value of such goods. From the 1st September, 1911, it has been required, in regard to goods only partially manufactured in the United Kingdom, that the final process or processes of manufacture shall have been performed in the United Kingdom, and that the expenditure in material of British production and/or British labour shall have been not less than one-fourth of the factory or works' cost of the goods in the finished state.

On the basis of the imports during 1913 the preferential provisions of the Tariff of 1908-11 covered 65 per cent. of the imports of merchandise of United Kingdom origin, the margin of preference being equal to 5.08 per cent. of the value of the goods. On the same basis the Tariff of 1921 has extended the application of the Preferential Tariff rates to 90 per cent. of the imports from the United Kingdom, and, at the same time, has increased the margin of preference to 12.22 per cent. *ad valorem*. For the purpose of these computations an unusual importation of warships valued at £2,495,000 has not been taken into account. The average equivalent *ad valorem* rate of duty payable under the Tariff of 1921 on goods of United Kingdom origin is about 25 per cent., whereas the same goods under the General Tariff rates would be called upon to pay an average rate of about 37½ per cent.

An application of the Tariff of 1921, to the imports from the United Kingdom during the year 1920-21 shews that 95 per cent. of these imports were favored by a margin of 11.97 per cent. *ad valorem*, representing about £8,750,000 additional duty which would have been paid had the same goods been imported under the General Tariff rates.

3. Reciprocal Tariffs.—The Tariff Act of 1921 introduced a new feature into Australian Tariffs in the form of an Intermediate Tariff. In submitting the schedule to Parliament, the Minister for Trade and Customs made the following statement of the object of the Intermediate Tariff:—" . . . the Minister is empowered under the Bill to enter into reciprocal arrangements with other Dominions of the British Crown. The Minister will be able, if we can arrange a satisfactory reciprocal agreement, to extend to other Dominions on individual items the British preference rate, or the intermediate rate, or, it may be, the general rate. Such agreements will be subject to the ratification of Parliament. The provision simply means that if any of our sister self-governing Dominions desires to enter into reciprocal trade relationships with us, the Minister, with the British Preference Tariff, the Intermediate Tariff, and the General Tariff before him, may bargain with the sister Dominion and come to an agreement, which, as I say, must subsequently be ratified by Parliament. . . . There is a provision of a somewhat similar character in regard to other countries than the Dominions, the only difference being that the Minister is empowered to extend to countries other than the Dominions only the Intermediate Tariff; that is to say, in entering into such negotiations, he is precluded from offering to those countries what we might term, for the purposes of this Bill, the Empire rate. He is confined in his negotiations with these other countries to the Intermediate Tariff."

(i) *Union of South Africa.* Until recently the Union of South Africa was the only British Dominion with which the Commonwealth had a reciprocal Tariff arrangement. The Commonwealth Customs Tariff (South African Preference) Act, No. 17 of 1906, and subsequent amending Acts have provided preferential rates of duty to be applied

to certain imported goods "when those goods are imported from and are the produce or manufacture of any of the British South African Colonies or Protectorates which are included within the South African Customs Union."

(ii) *Dominion of New Zealand.* On the 11th April, 1922, an agreement was made between the Commonwealth of Australia and the Dominion of New Zealand whereby goods specified in the schedule attached to the agreement should be admitted at the rates of duty set out in the schedule. In addition to the goods specially mentioned in the schedule, it is provided that "all other goods being the produce or manufacture of Australia or of New Zealand shall be dutiable at the rates applicable to goods being the produce or manufacture of the United Kingdom, upon entry into New Zealand or Australia respectively." This agreement was ratified by the Commonwealth Parliament by the Customs Tariff (New Zealand Preference) 1922, and, by Proclamation dated 24th August, 1922, came into operation on the 1st September, 1922.

(iii) *Dominion of Canada.* Although previous efforts to bring about reciprocal Tariff arrangements between Canada and Australia have not been successful, negotiations with this object are at present, again, in progress.

4. **Preferential Tariff of the United Kingdom.**—The post war Tariff of the United Kingdom provides Preferential Customs Rates on certain goods where they are shewn to the satisfaction of the Commissioners of Customs and Excise to have been consigned from and grown, produced, or manufactured in the British Empire. Manufactured articles generally are not entitled to the preferential rates unless 25 per cent. of their value is the result of labour within the British Empire. The principal items of interest to Australia which are accorded preferential treatment under the Tariff of the United Kingdom are.—Fruits, dried and preserved; jam; fruit pulp; preserved milk; wine; and brandy.

5. **Preferential Tariffs of the British Empire.**—In the Official Year Book No. 11, pages 601–3, will be found an outline of the systems of Preferential Tariffs within the British Empire and the Tariff arrangements between British Dominions or Colonies and Foreign Countries, together with a list of countries with whom Great Britain had concluded commercial treaties for "Most-Favoured-Nation" treatment.

§ 15. Rates of Duty in Australia and other Countries.

The following table shews the proportion of the total imports of merchandise entered for "home consumption" free of duty, in the undermentioned countries, and also the equivalent *ad valorem* rates of duty charged:—

PROPORTION OF FREE GOODS AND RATES OF IMPORT DUTY.

Particulars.	Australia.			Canada.	New Zealand.	U.S. of America.
	(a)	(b)	(c)	(d)	(e)	(f)
Year ended	31/12/06	31/12/13	30/6/21	31/3/20	31/12/20	30/12/19
Percentage of free merchandise ..	35.18	42.30	37.98	34.84	48.60	70.84
Equivalent <i>ad val.</i> rates of duty on—	%	%	%	%	%	%
Spirits, wines and malt liquors ..	153.23	136.62	103.50	52.91	54.13	50.79
Tobacco, and preparations thereof ..	168.65	133.70	55.37	5.54b	57.39	47.05d
Other dutiable merchandise ..	17.04	20.92	20.59	22.02	18.97	19.65
Other merchandise dutiable and free	10.75	11.72	12.24	14.48	9.16	5.54
Total dutiable merchandise ..	27.14	28.47	23.02	22.51	23.33	21.27
Total merchandise dutiable and free	17.59	16.42	13.94	14.67	11.99	6.20
Customs duty per head	£ s. d. 1 15 10	£ s. d. 2 12 8	£ s. d. 4 0 7	£ s. d. 4 4 6	£ s. d. 6 5 1c	£ s. d. 0 10 8

(a) Excluding war tax, £6,445,742.

(b) Unmanufactured tobacco is admitted to Canada free of duty.

(c) Exclusive of Maoris and residents of Cook and other Pacific Islands.

(d) Tobacco is admitted free of Customs duty from the Philippine Islands.

(e) Excluding Primage, £573,792.

The figures given for the year ended 30th June, 1906, represent the results of the last full year of operation of the Tariff of 1902.

From the results given in the above table, it will be seen that the scheme of taxation, by means of import duties, varies materially between the countries named. In Australia and Canada, taxation is spread more widely over imported commodities than in New Zealand or the United States of America. In the latter country, 70.84 per cent. of all imports are free of duty, whereas in the Commonwealth, about 38 per cent. only of the total imports were exempt from taxation during the year 1920-21. A considerable restriction of the free list in this country was necessary to raise the revenue required by the exigencies of the war, though even prior to the war (in 1913) free goods represented only 42.30 per cent. of the total imports, while in New Zealand they comprised 52 per cent. and in the United States of America, 60 per cent.

The comparatively large percentage of free goods in the imports of 1913 was not entirely the effect of Tariff changes, but was in some measure due to the inclusion in the free imports of that year of warships to the value of £2,495,000 and of mercantile ships to the value of £1,500,000. Imports of ships to such a value in any one year are, of course, unusual.

The apparent anomaly of a declining average rate of duty (*i.e.*, from 16.42 per cent.* in 1913 to 13.94 per cent. in 1920-21), at the same time that actual Tariff rates have been increased both in amount and in the extent of their application, is due to two causes, *viz.* :—

1. The higher values of goods subject to duties based on the unit of quantity (for example, see page 493), and
2. The effect of the protective rates in the attainment of their purpose in excluding from the import returns the goods subject to the higher rates. As an example of the operation of this cause the case of boots and shoes may be quoted. In 1913 "boots and shoes of any material *n.e.i.*" paying an average rate of 31.3 per cent. were imported to the value of £484,239, representing £60 in every £10,000 of imports. In 1920-21 the imports of boots and shoes of similar Tariff designation, but bearing an average duty of 44.5 per cent., had dwindled, by reason of the high duties, to £125,713, representing £8 only in every £10,000.

Thus it will be seen that in so far as the higher protective duties are effective in their purpose they not only exclude from the import returns the goods to which they apply, but they automatically to the same degree operate towards their own effacement as contributors to the average rate of duty. The average rate of duty on dutiable goods is further affected by the contraction of the free list by the imposition of low rates of duty. These low rates of duty have been largely imposed for the purpose of providing preference to the United Kingdom.

From the foregoing it is clear that the total effect, in its incidence, of a revision of a Tariff can be measured only by applying the Tariff in its original form, and in its revised form, to the same lot of imports. A comparison, on these lines, between the Tariff of 1908-11 and the Tariff of 1921 is given in the following paragraph.

§ 16. Customs Tariff of 1921.

The Commonwealth Customs Duties are levied partially in the form of *ad valorem* duties and partially in the form of fixed rates per unit of quantity; in a few instances both these forms are complementary, and in a few other instances provision is made for the application of fixed rates or *ad valorem* rates according to which will produce the greater amount of duty. Under the Tariff of 1921 about 46 per cent. of imports (on the basis of the imports of 1913) would be subject to *ad valorem* rates, about 25 per cent. would pay fixed rate duties, and the balance—about 29 per cent.—would be free of duty.

The following table shews approximately the changes made in the average equivalent *ad valorem* rates of duty on the various classes of imports by the Tariff of 1921 in comparison with the Tariff of 1908-11. The results given have been obtained by

* But for the abnormal imports of ships referred to in the preceding paragraph the average rate of duty would have been higher, and the decline to 13.94 per cent. in 1920-21 would have been correspondingly greater.

applying, as closely as possible, the rates of duty prescribed by each Tariff to the imports of 1913. The year 1913 has been selected as representing more nearly than any subsequent year the normal composition of Commonwealth imports. Owing to the many subdivisions which have been made in the items of the earlier Tariff in the recent revision, and the inadequacy of the statistics of imports to meet these changes, the results must be taken as merely approximate to the truth. As the imports for 1913 have been taken as the basis of the comparison it has been necessary to make allowance for the increase in prices in computing the *ad valorem* equivalent of the fixed rate duties in operation under the Tariff of 1921. For this purpose the average prices for similar goods imported during 1921-22 have been taken.

CUSTOMS TARIFFS OF 1908-11 AND OF 1921 COMPARED.

Class of Imports.	Tariff of 1908-11.			Tariff of 1921.		
	Per-centage of Free Goods.	Equivalent <i>ad val.</i> Rates of Duty on—		Per-centage of Free Goods.	Equivalent <i>ad val.</i> Rates of Duty on—	
		All Mer- chandise.	All Dutiable Mer- chandise.		All Mer- chandise.	All Dutiable Mer- chandise.
	%	%	%	%	%	%
I. Foodstuffs of Animal Origin ..	10.42	15.43	17.22	10.42	14.71	16.44
II. Foodstuffs of Vegetable Origin ..	5.33	33.11	34.97	12.00	20.76	23.59
III. Beverages (non-alcoholic) and Substances used in making ..	79.62	4.36	21.38	79.62	4.08	20.04
IV. Spirituous and Alcoholic Liquors ..	00.00	144.95	144.95	00.00	106.92	106.92
V. Tobacco and preparations thereof ..	00.00	159.00	159.00	00.00	85.32	85.32
VI. Live Animals ..	87.70	00.07	00.59	100.00	00.00	00.00
VII. Animal Substances (mainly unmanufactured) ..	80.37	2.70	13.76	80.37	3.64	18.56
VIII. Vegetable Substances and Fibres ..	87.89	3.52	29.01	79.31	6.51	31.46
IX. (i) Apparel ..	15.12	24.75	29.15	4.67	34.85	36.55
(ii) Textiles ..	45.39	9.45	17.31	44.60	12.40	22.36
(iii) Bags and Cordage ..	91.30	1.91	21.92	91.30	2.42	27.88
X. Oils, Fats, and Waxes ..	32.32	11.12	16.43	27.72	9.73	13.46
XI. Paints and Varnishes ..	4.43	16.25	17.00	4.07	21.33	22.23
XII. Stones and Minerals used industrially ..	16.54	19.27	23.10	6.60	21.30	22.80
XIII. Ores and Mineral Earths ..	100.00	..	..	63.78	19.23	53.22
XIV. (i) Machines and Machinery, Agricultural Implements and Machinery ..	39.47	12.44	20.56	4.62	32.58	34.16
Other Machines and Machinery ..	25.92	14.80	19.93	10.60	23.62	26.43
Total Machines and Machinery ..	27.42	14.54	20.04	9.94	24.63	27.34
(ii) Manufactures of Metals, iron and steel (simpler forms) ..	52.18	3.94	8.25	1.60	20.83	21.17
Other Manufactures of Metals ..	42.33	11.64	20.18	16.74	22.83	27.43
Total Manufactures of Metals ..	47.22	7.81	14.80	9.22	20.74	22.85
XV. Rubber and Manufactures of Rubber ..	34.46	15.43	23.54	34.46	23.21	35.42
Leather and Manufactures of Leather ..	3.34	18.72	19.37	1.94	31.37	31.99
XVI. Wood and Wicker, raw and manufactured ..	7.70	15.53	16.83	2.86	21.64	22.28
XVII. Earthenware, Cements, China, Glass, and Stoneware ..	7.13	25.71	27.67	2.38	28.44	29.13
XVIII. (i) Paper ..	71.75	6.30	22.30	2.34	15.43	15.80
(ii) Stationery ..	67.46	7.82	24.03	67.04	10.05	30.47
XIX. Jewellery, Timepieces, and Fancy Goods ..	20.47	20.39	25.64	20.48	32.55	40.94
XX. Optical Surgical and Scientific Instruments ..	75.38	3.52	14.26	21.91	22.37	28.65
XXI. Drugs, Chemicals, and Fertilisers ..	71.50	6.32	23.92	39.19	14.82	24.37
XXII. Miscellaneous ..	75.93	5.63	23.60	73.08	8.24	30.61
Total Merchandise ..	42.96	17.08	29.96	29.12	22.46	31.68
Total Merchandise, excluding Alcoholic Liquors and Tobacco ..	44.76	11.66	21.10	30.31	18.03	25.86

NOTE.—In computing the results given in the above table it has been assumed that all imports during 1913 were entered for consumption during the year and that all deferred duties were in operation.

From the results given it would appear that the Tariff of 1921 has reduced the proportion of imports which were free from duty from 42.96 per cent. to 29.12 per cent., or, conversely, has increased the proportion of dutiable goods from 57.04 per cent. to 70.88 per cent. This result is due in the most part (75 per cent.) to the imposition of duties of general application, and to a lesser degree (25 per cent.) to duties imposed for the purpose of providing preference to the manufactures of the United Kingdom.

The average *ad valorem* rate of duty over all merchandise—both dutiable and free—has been raised from 17.08 per cent. to 22.46 per cent. This comparatively small increase in what is the equivalent of an average *ad valorem* rate is due to the effect of increased prices for those goods which are subject to fixed rate duties. In order to determine what change has been made in the average rate of duty over all goods, it is usual to put all rates on a common *ad valorem* basis. Notwithstanding that in numerous cases very substantial increases were made in these fixed rate duties the increase in price was so much greater, that their *ad valorem* incidence is less, at the present time, under the 1921 Tariff than it was when the Tariff of 1908-11 was in operation. A simple illustration, to make this clear, may not be out of place.

Under the Tariff of 1908-11 the duty on whisky was 14s. per gallon, while under the Tariff of 1921 it is 30s. per gallon—an actual increase in duty of 114 per cent. In 1913 the import value of a gallon of bulk whisky was 6s. 6d., whereas in 1921-22 a similar gallon of whisky was valued at 26s. 5d.—an increase in price of 306 per cent. Thus under the 1908-11 Tariff a gallon of whisky valued at 6s. 6d. paid duty amounting to 14s. or 215 per cent. *ad valorem*, while under the Tariff of 1921 a gallon of whisky valued at 26s. 5d. would pay 30s. which, however, would represent only 113 per cent. *ad valorem*. The same thing applies, in varying degree, to all goods subject to fixed rate duties.

The classes most conspicuously affected in this way are those numbered I. to V. in the accompanying table, and it will be noticed that for each of these classes the rates of duty on the *ad valorem* basis are lower under the 1921 Tariff than before. These results do not indicate a reduction of duties, but merely an increase in prices greater than the increase in duties. As prices revert towards the pre-war level the duties collected under fixed rates will, of course, increase relatively to the cost of the goods.

In a consideration of the Tariff changes in relation to protection it is necessary to place such changes on an *ad valorem* basis in order to shew the increment to cost represented by the Tariff. For other purposes, however, the effect of the new Tariff as compared with the Tariff of 1908-11 will be made plainer by a simple statement of the amount of duty which would be collected from a uniform composite unit of goods imported under the conditions regarding prices in which each Tariff was operating. Taking the imports of 1913 as the composite unit, and assuming that these imports were all cleared for consumption within the year, the amount of duty paid thereon under the Tariff of 1908-11 would have been about £13,000,000; under the Tariff of 1921, the same goods at the same prices would have paid duty amounting to £25,000,000, representing an increase of 92 per cent. in the average duty per unit of quantity. If, however, the same goods had been imported during 1921-22 when values were much higher than in 1913, they would—on the assumption of 75 per cent. higher values—have paid £33,000,000 in duty, which would represent an increase in duty per unit of quantity equal to 154 per cent., i.e., the duty would be two and a-half times as much as formerly. If prices recede, the average duty per unit of quantity will be lessened automatically by the operations of the *ad valorem* rates. Reference to the changes made in the preferential provisions of the Tariff in favour of the United Kingdom will be found on page 501 *ante*.

Since the above results were compiled the Minister for Trade and Customs moved in Committee of the House of Representatives (on 13th September, 1922) that the duties be reduced on fencing wire, of gauges 8 to 14, for use as fencing wire without further manufacture or for such manufacturing purposes as might be prescribed by departmental by-laws; on wire netting; galvanized iron; and tractors. For the duties removed it is proposed to substitute a system of bounties to the Australian manufacturers of the articles mentioned.

SECTION XVI.

SHIPPING.

§ 1. General.

NOTE.—Owing to the general disorganization of shipping in consequence of the war, the figures relating to the war period given in the following tables are of little comparative significance.

1. **Record of Shipping before Federation.**—Prior to Federation it was customary for each State to regard the matter of shipping purely from the State standpoint, and vessels arriving from or departing to countries beyond Australia, *via* other Australian States, were recorded as if direct from or to the oversea country. Thus, a mail steamer from the United Kingdom, which made Fremantle her first port of call in Australia, would be recorded not only there, but again in Adelaide, Melbourne, and Sydney, as an arrival from the United Kingdom. Consequently, any aggregation of the shipping records of the different States would repeatedly include a large proportion of the shipping visiting Australia. In earlier years, when many vessels sailed from the various State ports direct for their destination, the error of repeated inclusion was less serious, but as the commerce of Australia developed, more and more ports of call were included in the voyage of each vessel, and the mere aggregation of State records hence became correspondingly misleading. Failure to recognise this was at times responsible for erroneous deductions from the statistical records as then compiled.

2. **Shipping since Federation.**—With the inauguration of the Commonwealth, the statistics of its shipping, especially of its oversea shipping, became of greater intrinsic importance. As an index of the position of Australia amongst the trading countries of the world, such statistics had a constitutional importance commensurate with Commonwealth interests, and correspondingly greater than those of individual States, and the nationality of the shipping trading with Australia became also a matter of greater moment.

3. **Difficulties of Comparisons of Total Shipping.**—From what is said in sub-section 1 above, it is obviously impossible to obtain results for Australia for pre-federal years not subject to the defect of repeated inclusions of the same vessels. Unfortunately, the statistical records of the first three years of Federal history are also subject to the same defect, and do not admit of direct comparison with those now kept. A careful estimate of the extent and effect of repeated inclusion has, however, been made and applied to the records of the earlier years, so as to extend the comparative results to those years. The error of such estimation will be negligible for comparative purposes.

4. **Present System of Record.**—The present system of record treats Australia as a unit, and counts, therefore, only one entry and one clearance for each visit to the Commonwealth. Repeated voyages of any vessel are, of course, included.

On arrival of every vessel at a port in the Commonwealth, whether from an oversea country or from another port within the Commonwealth, the master is required to deliver to the Customs officer a form giving all particulars necessary for statistical purposes in regard to the ship, passengers, and crew. Similarly, on departure from a port, a form

containing corresponding information is lodged. These forms, which provide a complete record of the movements of every vessel in Commonwealth waters, are at the end of each month forwarded by the Customs officer at each port to the Commonwealth Bureau of Statistics, and furnish the material for the compilation of the Shipping and Migration Returns.

Under the system previously in force it was found that the estimates of population, in so far as they were based on seaward movement, were very unsatisfactory, and it is believed that the method referred to above gives decidedly better results.

From the 1st July, 1914, the statistical year for the record of Trade and Shipping of the Commonwealth was altered from the calendar year to agree with the fiscal year.

In all instances the tonnage quoted is the net tonnage.

§ 2. Oversea Shipping.

1. **Total Oversea Shipping.**—In order to extend, as indicated, the comparison of the oversea shipping to the earliest years for which any records are available, an estimate of its probable amount has been made. This estimate is based on a comparison of the results obtained by merely aggregating State statistics, with the defect of multiple records, and the results obtained under the present system, which avoids the multiple record. From the nature of the case it is obvious that the ratio of repeated inclusion to the total traffic has been continually advancing, and this fact has been duly taken into account in deducing the results in the following table:—

TOTAL OVERSEA SHIPPING ENTERED AND CLEARED THE COMMONWEALTH, 1822 TO 1920-21 (MULTIPLE RECORD EXCLUDED BY ESTIMATION PRIOR TO 1904).

Year.	Vessels.	Tons.	Year.	Vessels.	Tons.	Year.	Vessels.	Tons.
1822 ..	73	30,683	1855 ..	3,239	1,449,657	1888 ..	3,933	4,464,895
1823 ..	76	30,543	1856 ..	2,669	1,195,794	1889 ..	3,897	4,460,426
1824 ..	71	29,029	1857 ..	2,842	1,530,202	1890 ..	3,363	4,150,027
1825 ..	80	30,786	1858 ..	2,607	1,373,050	1891 ..	3,778	4,726,307
1826 ..	65	23,587	1859 ..	2,759	1,403,210	1892 ..	3,432	4,239,500
1827 ..	95	29,301	1860 ..	2,464	1,288,518	1893 ..	3,046	4,150,433
1828 ..	124	38,367	1861 ..	2,466	1,149,476	1894 ..	3,397	4,487,546
1829 ..	185	56,735	1862 ..	2,917	1,389,231	1895 ..	3,331	4,567,883
1830 ..	195	56,185	1863 ..	3,378	1,564,369	1896 ..	3,309	4,631,266
1831 ..	185	52,414	1864 ..	3,344	1,537,433	1897 ..	3,279	4,709,697
1832 ..	206	59,628	1865 ..	3,005	1,317,934	1898 ..	3,222	4,681,398
1833 ..	241	72,647	1866 ..	3,378	1,470,728	1899 ..	3,356	5,244,197
1834 ..	249	77,068	1867 ..	2,927	1,277,679	1900 ..	3,719	5,894,173
1835 ..	310	96,928	1868 ..	3,080	1,350,573	1901 ..	4,028	6,541,991
1836 ..	310	93,974	1869 ..	3,107	1,472,837	1902 ..	3,608	6,234,460
1837 ..	442	113,432	1870 ..	2,877	1,381,878	1903 ..	3,441	6,027,843
1838 ..	471	132,038	1871 ..	2,748	1,312,642	1904 ..	3,700	6,682,011
1839 ..	652	191,507	1872 ..	2,788	1,380,466	1905 ..	4,088	7,444,417
1840 ..	915	277,335	1873 ..	3,159	1,609,067	1906 ..	4,155	7,966,658
1841 ..	900	278,738	1874 ..	3,153	1,728,269	1907 ..	4,394	8,822,866
1842 ..	862	232,827	1875 ..	3,437	1,914,462	1908 ..	4,051	8,581,151
1843 ..	736	183,427	1876 ..	3,295	1,868,343	1909 ..	3,910	8,516,751
1844 ..	629	155,654	1877 ..	3,157	1,930,434	1910 ..	4,048	9,333,146
1845 ..	785	164,221	1878 ..	3,372	2,127,518	1911 ..	4,174	9,984,801
1846 ..	888	211,193	1879 ..	3,344	2,151,338	1912 ..	4,052	10,275,314
1847 ..	1,033	245,358	1880 ..	3,078	2,177,877	1913 ..	3,985	10,601,948
1848 ..	1,182	305,840	1881 ..	3,284	2,549,364	1914-15	3,211	8,599,258
1849 ..	1,137	355,886	1882 ..	3,652	3,010,944	1915-16	3,324	8,538,322
1850 ..	1,300	425,206	1883 ..	3,857	3,433,102	1916-17	2,986	7,694,442
1851 ..	1,576	515,061	1884 ..	4,315	4,064,947	1917-18	2,197	5,031,750
1852 ..	1,896	844,243	1885 ..	4,052	3,999,917	1918-19	2,614	6,180,486
1853 ..	3,364	1,490,422	1886 ..	3,793	3,853,246	1919-20	2,981	8,086,507
1854 ..	3,781	1,744,251	1887 ..	3,454	3,764,430	1920-21	3,674	9,503,018

It must be borne in mind that while the above figures in themselves have no absolute significance, nevertheless, on the assumption that the element of duplication has been in fairly constant ratio, they furnish the best available indication of the growth of Australian oversea shipping.

2. **Comparison with other Countries.**—The place of Australia among various countries in regard to oversea shipping is indicated in the following table, both absolutely and in respect of tonnage per head of population.

OVERSEA SHIPPING OF VARIOUS COUNTRIES.

Country.	Year.	Tonnage Entered and Cleared.	
		Total.	Per Inhabitant.
Argentine Republic	1918	6,788,000	0.8
Belgium	1919	9,077,616	1.2
Canada	1919	25,261,393 ^a	2.8
Commonwealth	1920-21	9,503,018	1.86
Denmark	1919	6,708,027	2.2
France	1919	45,668,000	1.2
Germany	1912	51,065,940	0.8
Italy	1919	48,237,126	1.3
Japan	1919	45,943,777	0.6
New Zealand	1921	3,884,577	3.1
Norway	1919	6,095,612	2.3
Sweden	1918	16,006,630	2.7
Union of South Africa	1919-20	7,233,000	1.2
United Kingdom	1920	73,108,000 ^b	1.7
United States	1919	74,086,573 ^a	0.7

(a) Exclusive of vessels trading on lakes and rivers between Canada and the United States.

(b) With cargoes only.

3. **Shipping Communication with various Countries.**—In previous issues of this Year Book tables were published shewing the number and tonnage of ships recorded as arriving from and departing to particular countries. At the same time it was shewn that such records were of no significance, for the reason that the tonnage of a vessel can be recorded against one country only, notwithstanding that the same vessel may carry cargo or passengers to or from Australia for several countries on the same voyage. For instance, a mail steamer on a voyage from Europe to Australia, through the Suez Canal, may call at Antwerp, Bremerhaven, London, Marseilles, Genoa, Port Said, Aden and Colombo, yet can be credited only to one of these ports, to the exclusion of all the other ports from the records. Perhaps a more striking example of the ineffectiveness of the records referred to is afforded by the recorded statistics of the shipping between South Africa and Australia. The advertised sailings from Australia to the United Kingdom *via* South African ports for the month of October, 1921, represented a net tonnage of 40,145, yet the statistical records shewed none of this tonnage as to South Africa, but all was shewn as to the United Kingdom. In view of this defect it has been decided to discontinue the publication of the figures purporting to shew the shipping communication with particular countries, and to restrict the statistics relating to the direction of the shipping to and from Australia to the following tables in which countries situated on the main trade routes are grouped together.

4. **General Trend of Shipping.**—A grouping of countries into larger geographical divisions, as in the following tables, shews more readily the general direction of Australian shipping, and, to some extent, avoids the limitations of the records in relation to particular countries, by covering more closely the main trade routes. The figures relating to Africa, however, are still subject to the limitations referred to in the previous paragraph.

GENERAL DIRECTION OF THE SHIPPING OF THE COMMONWEALTH, 1904 TO 1920-21.

Countries.	—	Annual Average.		1918-19.	1919-20.	1920-21.
		1904-8.	1909-13.			
TONNAGE ENTERED.						
United Kingdom and European Countries	Cargo	1,343,869	1,939,579	607,680	982,237	1,102,994
	Ballast	92,372	88,072	348,719	477,183	269,351
New Zealand	Cargo	530,683	674,799	393,927	411,819	518,789
	Ballast	142,521	161,450	98,691	173,601	350,370
Asiatic Countries and Islands in the Pacific	Cargo	459,612	727,817	619,174	682,592	837,195
	Ballast	355,196	147,919	296,264	538,630	631,004
Africa	Cargo	31,852	29,233	107,607	50,982	21,298
	Ballast	280,168	289,091	254,878	254,527	236,320
North and Central America	Cargo	378,147	488,737	490,592	454,830	747,599
	Ballast	98,628	36,693	14,895	3,642	8,747
South America	Cargo	3,861	17,834	1,179	11,501	8,236
	Ballast	248,826	297,300	5,454	..	27,013
	Cargo	2,748,024	3,877,999	2,220,159	2,593,961	3,236,111
	Ballast	1,217,711	1,021,425	1,018,901	1,447,583	1,522,805
Total .. ..	..	3,965,735	4,899,424	3,239,060	4,041,544	4,758,916

TONNAGE CLEARED.						
United Kingdom and European Countries	Cargo	1,397,960	2,010,192	1,122,890	1,925,711	1,864,330
	Ballast	3,223	41	33,446	12,547	15,421
New Zealand	Cargo	701,987	1,004,924	373,058	596,367	789,094
	Ballast	57,751	51,552	25,230	23,157	24,254
Asiatic Countries and Islands in the Pacific	Cargo	808,409	922,035	672,306	844,879	1,123,141
	Ballast	37,309	51,922	43,618	30,129	52,374
Africa	Cargo	149,462	112,918	387,550	320,721	387,649
	Ballast	2,421	78	7,270	4,789	7,506
North and Central America	Cargo	243,618	195,497	235,228	224,358	294,145
	Ballast	40,692	32,849	5,791	17,068	22,673
South America	Cargo	482,774	455,136	33,709	45,237	162,974
	Ballast	8,079	5,824	1,330	..	541
	Cargo	3,784,210	4,700,702	2,824,741	3,957,273	4,621,933
	Ballast	149,475	142,266	116,685	87,690	122,769
Total .. ..	..	3,933,685	4,842,968	2,941,426	4,044,963	4,744,102

TONNAGE ENTERED AND CLEARED.

Countries.		Annual Average.		1918-19.	1919-20.	1920-21.
		1904-8.	1909-13.			
United Kingdom and European Countries		2,837,424	4,037,884	2,112,735	3,397,673	3,252,096
		1,432,942	1,892,725	890,908	1,204,944	1,682,507
Asiatic Countries and Islands in the Pacific		1,660,526	1,849,693	1,631,362	2,096,230	2,643,714
		463,903	432,220	757,305	631,019	652,773
Africa		761,085	753,776	746,506	699,898	1,073,164
		743,540	776,094	41,672	56,738	198,764
North and Central America		6,532,234	8,578,700	5,044,900	6,551,234	7,857,444
		1,367,186	1,163,692	1,135,586	1,535,273	1,645,574
Total .. ..	..	7,899,420	9,742,392	6,180,486	8,086,507	9,503,018

5 **Nationality of Oversea Shipping.**—As will be seen from the following table, the greater part of the shipping visiting the Commonwealth is of British nationality, though the proportion of British tonnage in 1920-21 was very much lower than in the immediately preceding years. This was largely due to the wages troubles in the coal-mining industry in the United Kingdom. As a consequence of this trouble, the exports of coal from the Commonwealth were largely increased, and the unusual occurrence of shipping coal from Australia to European countries was experienced. The demand for Australian coal is the principal cause of the increased tonnage of foreign ships which were sent to carry the coal to their home countries. Japanese tonnage was active in the carriage of coal particularly to the Netherlands Indies—and also in the transport of wool and wheat.

NATIONALITY OF ALL VESSELS WHICH ENTERED AND CLEARED THE COMMONWEALTH FROM AND TO OVERSEA COUNTRIES, 1904 TO 1920-21.

Nationality.	Tonnage.				
	Annual Average.		1918-19.	1919-20.	1920-21.
	1904-8.	1909-13.			
BRITISH—					
Australian	608,432	810,482	855,941	792,066	1,121,292
United Kingdom	4,406,092	5,224,923	3,725,351	5,122,451	5,061,488
Canadian .. ..	..	..	..	..	(a)76,985
New Zealand	788,614	1,097,384	254,575	300,189	298,373
Other British	17,330	31,476	40,775	87,291	73,346
Cargo	4,952,083	6,448,777	3,896,477	5,195,055	5,768,965
Ballast	868,385	715,488	980,165	1,106,942	862,519
Total British	5,820,468	7,164,265	4,876,642	6,301,997	6,631,484
Per cent. on total	73.68	73.53	78.90	77.93	69.78
FOREIGN					
Austro-Hungarian	5,909	18,337	..	..	..
Danish	14,135	7,816	15,497	15,254	47,313
Dutch	28,149	148,112	131,627	147,189	269,825
French	474,312	432,891	138,064	349,804	232,025
German	745,862	1,028,630	..	..	..
Italian	106,944	70,582	30,459	120,044	236,482
Japanese	47,280	160,580	331,872	613,536	1,015,290
Norwegian	359,622	500,950	174,825	94,184	257,952
Russian	46,295	51,248	43,973	..	..
Swedish	29,731	49,642	64,158	43,125	168,652
United States	207,438	83,892	344,795	376,530	548,828
Other Foreign	13,275	25,447	28,574	24,844	95,167
Cargo	1,580,151	2,129,923	1,148,423	1,356,179	2,088,479
Ballast	498,801	448,204	155,421	428,331	783,055
Total Foreign	2,078,952	2,578,127	1,303,844	1,784,510	2,871,534
Per cent. on total	26.32	26.47	21.10	22.07	30.22
Cargo	6,532,234	8,578,700	5,044,900	6,551,234	7,857,444
Per cent. on total	82.68	88.04	81.63	81.01	82.68
Ballast	1,367,186	1,163,692	1,135,586	1,535,273	1,645,574
Per cent. on total	17.32	11.96	18.37	18.99	17.32
Grand Total	7,899,420	9,742,392	6,180,486	8,086,507	9,503,018

(a) Previously included in Other British.

During the years 1904-8 the Australian tonnage engaged in the oversea trade represented 7.70 per cent. of the total tonnage which entered and cleared the Commonwealth. In the following quinquennial period the proportion of Australian tonnage was 8.32 per cent. and in 1918-19, by reason of the diversion to the oversea trade of Australian ships usually engaged in the coastal trade, it rose to 13.85 per cent. During 1920-21 Australian tonnage represented 11.80 per cent. of the tonnage which entered and cleared the Commonwealth.

The relative proportion of British and foreign tonnage which entered and cleared the Commonwealth during the last fifteen years, apart from tonnage in ballast, is given below. These figures may be considered to indicate more closely the proportion of the actual carrying trade done than does the total tonnage. The proportion of foreign tonnage declined materially in the earlier years of the war owing to the complete withdrawal of ships under the German and Austrian flags and to the greatly reduced tonnage of French and Norwegian ships, which were precluded from following their usual employment. During the year 1917-18 the proportion of foreign shipping, in consequence of the activities of Japanese and United States ship-owners, almost attained its pre-war dimensions, and in 1920-21, as a result of the circumstances referred to on the preceding page, the proportion of foreign tonnage was greater than in any year during the period under review.

PROPORTION OF TONNAGE WITH CARGO OF BRITISH AND FOREIGN NATIONALITY ENTERED AND CLEARED THE COMMONWEALTH, 1904 TO 1920-21.

Nationality.	Annual Average.		1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	1904-8.	1909-13.					
British	75.80	75.18	82.20	75.46	77.24	79.30	73.42
Foreign	24.20	24.82	17.80	24.54	22.76	20.70	26.58
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Generally most of the foreign tonnage which enters the Commonwealth is employed between its home ports or the colonies of its own country and the Commonwealth, *e.g.*, French shipping is engaged chiefly between the Commonwealth, France and New Caledonia, while Dutch ships are employed almost entirely between the Commonwealth and the Netherlands or the Netherlands East Indies. Norwegian shipping is always an exception to this rule. The greater part of Norwegian tonnage engaged in trade with Australia is composed of vessels operating under charters. Of the 132,647 tons of Norwegian shipping which entered the Commonwealth during 1920-21, 64,450 tons (48.59 per cent.) were in ballast. In 1920-21, however, we find American ships carrying coal to Chile and Japanese tonnage carrying various freights in all directions.

The following table shews the direction of the activities of the principal foreign countries engaged in the oversea carrying trade of the Commonwealth. It will be noticed that the greater part of the Japanese and French tonnage which entered the Commonwealth during 1920-21 was in ballast. In the case of French vessels the tonnage in ballast represented as much as 67 per cent. A similar analysis with regard to German ships will be found in previous issues.

SHIPPING OF PRINCIPAL FOREIGN NATIONS BETWEEN AUSTRALIA AND OTHER COUNTRIES DURING 1920-21.

Countries.	Nationality.					
	Japanese.		French.		United States.	
	Entered.	Cleared.	Entered.	Cleared.	Entered.	Cleared.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
EUROPEAN COUNTRIES—						
United Kingdom ..	..	14,627	18,352	29,124	1,439	3,780
France ..	..	5,054	42,131	32,235	1,928	..
Other European Countries ..	..	25,582	3,894	5,666	..	..
NEW ZEALAND ..	84,437	56,923	..	..	29,415	20,973
ASIATIC COUNTRIES AND ISLANDS IN THE PACIFIC—						
Dutch East Indies ..	87,064	151,504	3,627	..	..	..
Japan ..	152,115	79,656	..	..	..	..
New Caledonia ..	..	..	26,913	24,289	..	..
Other Pacific Islands ..	32,293	23,974	4,500	6,300	924	24,846
Straits Settlements ..	62,406	53,228	..	..	5,285	..
Other Asiatic Countries ..	68,697	69,746	..	..	11,619	17,321
AFRICAN COUNTRIES ..	2,616a	20,017	4,676	4,333a	11,705	861
NORTH AMERICAN COUNTRIES—						
United States ..	12,778	..	..	1,947	208,757	139,091
Other N. American Countries ..	..	..	..	..	2,236	3,671
SOUTH AMERICAN COUNTRIES—						
Chile ..	3,583	8,990	1,951	18,376	..	54,643
Other S. American Countries ..	..	..	1,946	1,765	681	9,653
With Cargo ..	181,815	490,120	35,210	121,326	227,113	257,607
In Ballast ..	324,174	19,181	72,780	2,709	46,876	17,232
Total ..	505,989	509,301	107,990	124,035	273,989	274,839

(a) Egypt.

A further analysis is appended, distinguishing between steam and sailing vessels of British and foreign nationality, which entered and cleared the Commonwealth during the years 1904 to 1920-21.

STEAM AND SAILING VESSELS ENTERED AND CLEARED, 1904 TO 1920-21.

Description and Nationality of Vessels.	Annual Average.				1918-19.		1919-20.		1920-21.	
	1904-8.		1909-13.							
	Ton-nage.	Per-centage.	Ton-nage.	Per-centage.	Ton-nage.	Per-centage.	Ton-nage.	Per-centage.	Ton-nage.	Per-centage.
Steam—										
British ..	4,773,674	82	6,677,412	80	4,717,362	85	6,219,048	81	6,469,295	73
Foreign ..	1,055,015	18	1,690,773	20	826,041	15	1,450,957	19	2,368,203	27
Total Steam..	5,828,689	100 (74)	8,368,185	100 (86)	5,543,403	100 (90)	7,670,005	100 (95)	8,837,498	100 (93)
Sailing—										
British ..	1,046,794	51	486,853	35	159,280	25	82,949	20	162,189	24
Foreign ..	1,023,938	49	887,354	65	477,803	75	333,553	80	503,331	76
Total Sailing	2,070,732	100 (26)	1,374,207	100 (14)	637,083	100 (10)	416,502	100 (5)	665,520	100 (7)
Steam and Sailing—										
British ..	5,820,468	74	7,164,265	74	4,876,642	79	6,301,997	78	6,631,484	70
Foreign ..	2,078,953	26	2,578,127	26	1,303,844	21	1,784,510	22	2,871,534	30
Total ..	7,899,421	100	9,742,392	100	6,180,486	100	8,086,507	100	9,503,018	100

6. **Tonnage in Ballast.**—The following table shews the tonnage of oversea vessels which entered and cleared the Commonwealth in ballast during the years 1904 to 1920-21 :—

TONNAGE ENTERED AND CLEARED IN BALLAST, 1904 TO 1920-1.

Year.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
1904-8(a) ..	785,396	432,315	1,217,711	82,990	66,486	149,476
1909-13(a) ..	632,751	388,675	1,021,426	82,737	59,529	142,266
1914-15 ..	441,908	129,305	571,213	238,314	108,401	346,715
1915-16 ..	595,591	49,153	644,744	196,033	172,746	368,779
1916-17 ..	720,040	151,728	871,768	104,078	90,172	194,250
1917-18 ..	322,807	133,175	455,982	68,021	19,516	87,537
1918-19 ..	886,494	132,407	1,018,901	93,671	23,014	116,685
1919-20 ..	1,046,921	400,682	1,447,583	60,021	27,669	87,690
1920-21 ..	787,163	735,642	1,522,805	75,356	47,413	122,769

(a) Annual average.

PROPORTION OF TOTAL BRITISH AND FOREIGN TONNAGE WHICH ENTERED AND CLEARED IN BALLAST, 1904 TO 1920-21.

Year.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1904-8(a) ..	26.51	41.08	30.36	2.86	6.05	3.71
1909-13(a) ..	17.67	30.50	21.06	2.36	4.93	3.03
1914-15 ..	12.88	17.36	13.68	6.51	14.12	7.84
1915-16 ..	17.02	6.38	15.10	5.63	21.95	8.64
1916-17 ..	22.95	21.25	22.64	3.32	12.75	5.05
1917-18 ..	17.65	21.23	18.56	3.49	3.11	3.40
1918-19 ..	34.55	19.68	31.46	4.05	3.65	3.97
1919-20 ..	33.30	44.62	35.82	1.90	3.12	2.17
1920-21 ..	23.74	50.99	32.00	2.27	3.32	2.59

(a) Annual average.

The tonnage which entered each State of the Commonwealth in ballast, during 1920-21, was as follows :—

TONNAGE OF OVERSEA VESSELS IN BALLAST WHICH ENTERED EACH STATE AND THE NORTHERN TERRITORY DURING 1920-21.

State.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	C'wealth.
Tonnage ..	844,765	50,066	51,932	120,951	451,700	3,391	..	1,522,805
Percentage on total ..	55.48	3.28	3.41	7.94	29.67	0.22	..	100.00

In normal times the large exports of coal from New South Wales afford special inducements to vessels in search of freights. The tonnage in ballast into New South Wales is mainly for coal cargo, into Victoria for wheat, into South Australia for wheat and ore, and into Western Australia for timber and wheat.

§ 3. Shipping of Ports.

1. **Shipping of Ports.**—Appended is an abstract of the total shipping tonnage—oversea and coastwise—which entered the more important ports of Australia during the year 1920–21, together with similar information in regard to some of the ports of New Zealand for the year 1921 and of the United Kingdom for the year 1919 :—

SHIPPING OF PORTS, AUSTRALIA, NEW ZEALAND, AND THE UNITED KINGDOM.

Port.	Tonnage Entered.	Port.	Tonnage Entered.
AUSTRALIA—		ENGLAND AND WALES—	
Melbourne	8,226,493	London	13,600,598
Sydney	7,236,253	Liverpool (inc. Birkenhead)	10,745,787
Newcastle	4,637,622	Cardiff	9,285,736
Adelaide(a)	2,607,064	Tyne Ports	7,900,801
Fremantle	2,326,551	Hull	3,286,441
Brisbane	1,905,111	Plymouth	3,101,760
Townsville	881,416	Newport	2,826,556
Rockhampton	522,386	Southampton	2,213,101
Mackay	501,671	Swansea	2,082,751
Albany	451,687	Bristol	1,865,806
Hobart	429,022	Sunderland	1,823,579
Cairns	417,391	Manchester (inc. Runcorn)	1,720,576
Bunbury	353,806	Middlesbrough	1,660,688
Thursday Island	293,313	Falmouth	1,644,639
Pirie	279,786	Blyth	1,381,237
Burnie	273,611	Port Talbot	1,195,977
Geelong	258,226	Dartmouth	1,008,875
Bowen	254,671	Cowes	975,202
Wallaroo	228,334	SCOTLAND—	
Devonport	227,530	Glasgow	3,438,055
Launceston	209,240	Leith	1,251,084
NEW ZEALAND—		IRELAND—	
Wellington	2,825,636	Dublin	2,554,529
Auckland	1,886,778	Belfast	2,582,874
Lyttleton	1,528,923	Cork (inc. Queenstown) ..	617,116
Dunedin	611,778		

(a) Exclusive of coastal shipping, particulars of which are not available.

§ 4. Vessels Built and Registered.

1. **Vessels Registered.**—The following table shows the number and net tonnage of steam, sailing, and other vessels on the registers of the various States and of the Northern Territory of the Commonwealth of Australia :—

VESSELS ON THE REGISTER, 31st DECEMBER, 1921.

State.	Steam.				Sailing.				Barges, Tugs, Dredges, etc., not Self-propelled.	Total.		
	Dredges and Tugs.		Other.		Fitted with Auxiliary Power.		Other.			No.	Net Tons.	
	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.	No.	Net Tons.				
New South Wales ..	44	1,328	551	126,249	112	1,892	256	16,536	45	9,915	1,008	155,920
Victoria ..	24	2,840	160	127,110	31	1,125	69	4,270	68	27,305	352	162,650
Queensland ..	21	3,352	64	16,451	25	292	114	2,009	31	4,184	255	26,288
South Australia ..	13	616	85	32,875	13	536	67	2,604	52	8,889	230	45,520
Western Australia ..	10	191	32	9,690	12	205	332	5,005	25	6,848	411	21,939
Tasmania ..	6	478	55	13,353	53	1,319	71	2,812	2	563	187	18,525
Northern Territory ..	..	..	..	..	1	17	27	337	..	..	28	354
Total ..	118	8,805	947	325,728	247	5,386	936	33,573	223	57,704	2,471	431,196

2. **Vessels Built.**—The following tables shew the number and tonnage of vessels built in the Commonwealth during each of the years 1902–1921, so far as such information can be ascertained from the Shipping Registers of the various States. The Merchant Shipping Act, under which vessels are registered in Australia, however, does not make it compulsory to register vessels under 15 tons burthen if engaged in river or coastal trade. Larger vessels are also exempt from registration if not engaged in trade. Yachts and small trading vessels may be, and frequently are, registered at the request of the owners. As the Shipping Registers have been, and are, the source of information, it follows that the figures given below will be subject to additions in the future, inasmuch as vessels already built may be added to the register at some future date.

VESSELS BUILT IN THE COMMONWEALTH, 1902 TO 1921.

NUMBER.

Year.	Steamers built of—					Oil Motor Vessels.	Sailing.	Pontoon, Dredges, etc.	Total.
	Wood.	Iron.	Steel.	Composite.	Total.				
1902	29	..	..	1	30	9	77	1	117
1903	15	1	2	..	18	17	158	2	195
1904	14	..	1	1	16	13	76	..	105
1905	15	..	4	..	19	22	18	2	61
1906	12	1	1	..	14	23	21	3	61
1907	17	..	..	1	18	12	37	1	68
1908	13	..	3	..	16	19	18	2	55
1909	10	..	..	..	10	14	38	1	63
1910	9	3	2	..	14	15	36	4	69
1911	15	1	2	1	19	9	38	4	70
1912	9	..	3	2	14	13	31	2	60
1913	17	..	2	1	20	15	30	..	65
1914	17	..	..	..	17	14	28	2	61
1915	4	..	2	..	6	7	4	..	17
1916	2	..	..	..	2	6	2	..	10
1917	3	..	..	1	4	3	5	..	12
1918	2	..	..	..	2	4	..	..	6
1919	2	..	3	..	5	4	8	..	17
1920	6	..	8	1	15	3	7	..	25
1921	1	..	3	..	4	4	2	..	10

TONNAGE.

Year.	Steamers.		Oil Motor Vessels.		Sailing.		Pontoon, Dredges, etc.		Total.	
	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.
1902	3,166	1,849	123	107	2,455	2,123	64	64	5,808	4,143
1903	1,569	956	624	455	3,211	2,758	385	350	5,789	4,519
1904	2,094	1,240	161	125	1,641	1,416	..	..	3,896	2,781
1905	2,444	1,462	278	200	355	307	967	896	4,044	2,865
1906	1,426	735	276	196	501	428	546	536	2,749	1,895
1907	2,381	1,305	108	93	840	778	152	145	3,481	2,321
1908	2,492	1,317	270	203	510	428	260	260	3,532	2,208
1909	1,351	735	212	172	814	686	98	98	2,475	1,691
1910	1,944	1,105	171	155	821	704	688	646	3,624	2,610
1911	2,226	1,197	150	121	783	698	762	720	3,921	2,736
1912	2,592	1,592	408	319	678	584	612	287	4,290	2,782
1913	2,262	1,201	350	248	517	491	..	..	3,129	1,940
1914	3,041	1,595	191	156	510	452	148	148	3,890	2,351
1915	914	385	212	143	194	183	..	..	1,320	711
1916	125	63	90	76	39	28	..	..	254	167
1917	619	300	37	30	229	161	..	..	885	491
1918	378	201	456	357	..	..	..	..	834	558
1919	10,829	6,626	64	55	1,010	864	..	..	11,903	7,545
1920	30,851	17,834	57	49	502	374	..	..	31,410	18,257
1921	10,243	5,879	45	38	11	11	..	..	10,999	5,928

§ 5. Interstate Shipping.

1. Total Vessels and Tonnage.—In the following tables are shown the number and tonnage of vessels recorded as having entered each State of the Commonwealth from any other State therein, and similarly, the number and tonnage cleared from each State to other Commonwealth States. The table gives results from 1901 to 1920-21. The shipping on the Murray River, between the States of New South Wales, Victoria, and South Australia is not included.

INTERSTATE SHIPPING, 1901 TO 1920-21.—NUMBER OF VESSELS.

State.	1901.	1906.	1911.	1916-17.	1918-19.	1919-20.	1920-21.
ENTERED.							
New South Wales ..	1,611	1,575	1,791	1,607	1,461	1,226	1,650
Victoria ..	1,502	1,561	1,648	1,423	1,239	1,269	1,614
Queensland ..	430	478	567	525	529	406	469
South Australia ..	719	752	789	539	445	456	603
Western Australia ..	446	335	415	385	309	367	431
Tasmania ..	713	840	864	728	727	787	987
Northern Territory	(a)	(a)	39	29	28	21	18
Total ..	5,421	5,541	6,113	5,236	4,738	4,532	5,772

CLEARED.

New South Wales ..	1,473	1,417	1,728	1,572	1,402	1,200	1,556
Victoria ..	1,569	1,610	1,765	1,580	1,369	1,367	1,786
Queensland ..	395	431	572	479	528	383	465
South Australia ..	826	802	900	579	516	497	657
Western Australia ..	456	363	394	310	310	306	343
Tasmania ..	694	809	836	717	725	781	1,003
Northern Territory	(a)	(a)	40	23	27	31	16
Total ..	5,413	5,432	6,235	5,260	4,877	4,565	5,826

TOTAL.

New South Wales ..	3,084	2,992	3,519	3,179	2,863	2,426	3,206
Victoria ..	3,071	3,171	3,413	3,003	2,608	2,636	3,400
Queensland ..	825	909	1,139	1,004	1,057	789	934
South Australia ..	1,545	1,554	1,689	1,118	961	953	1,260
Western Australia ..	902	698	809	695	619	673	774
Tasmania ..	1,407	1,649	1,700	1,445	1,452	1,568	1,990
Northern Territory	(a)	(a)	79	52	55	52	34
Total ..	10,834	10,973	12,348	10,496	9,615	9,097	11,598

(a) Included with South Australia.

INTERSTATE SHIPPING, 1901 TO 1920-21.—TONNAGE.

State.	1901.	1906.	1911.	1916-17.	1919-20.	1920-21.
ENTERED.						
New South Wales	2,031,089	2,456,269	3,318,605	3,104,717	2,451,644	3,297,358
Victoria ..	1,956,900	2,473,771	2,959,551	2,254,634	2,017,798	2,434,778
Queensland ..	545,469	692,354	840,052	963,931	635,809	770,233
South Australia..	1,135,714	1,582,802	1,970,490	1,302,537	1,215,970	1,554,649
Western Australia	973,474	968,664	1,378,800	1,373,625	1,364,866	1,600,142
Tasmania ..	485,023	721,240	895,546	525,862	441,660	592,852
Northern Territory	(a)	(a)	64,518	52,663	34,251	36,269
Total ..	7,127,669	8,895,100	11,427,562	9,577,969	8,161,998	10,286,281

CLEARED.

New South Wales	1,856,501	2,177,496	3,209,723	2,994,899	2,361,074	3,084,939
Victoria ..	2,038,424	2,617,966	3,233,531	2,755,961	2,428,328	2,991,715
Queensland ..	440,659	578,561	855,776	779,017	570,200	785,547
South Australia..	1,377,399	1,772,356	2,343,269	1,490,529	1,452,513	1,812,370
Western Australia	977,846	1,051,629	1,303,359	1,162,325	1,229,540	1,278,581
Tasmania ..	433,735	636,944	728,170	479,182	410,152	568,372
Northern Territory	(a)	(a)	66,357	43,607	52,855	34,686
Total ..	7,124,564	8,834,952	11,740,185	9,705,520	8,504,662	10,556,210

TOTAL.

New South Wales	3,887,590	4,633,765	6,528,328	6,099,616	4,812,718	6,382,297
Victoria ..	3,995,324	5,091,737	6,193,082	5,010,595	4,446,126	5,426,493
Queensland ..	986,128	1,270,915	1,695,828	1,742,948	1,206,009	1,555,780
South Australia..	2,513,113	3,355,158	4,313,759	2,793,066	2,668,483	3,367,019
Western Australia	1,951,320	2,020,293	2,682,159	2,535,950	2,594,406	2,878,723
Tasmania ..	918,758	1,358,184	1,623,716	1,005,044	851,812	1,161,224
Northern Territory	(a)	(a)	130,875	96,270	87,106	70,955
Total ..	14,252,233	17,730,052	23,167,747	19,283,489	16,666,660	20,842,491

(a) Included with South Australia.

The figures presented in the above table include overseas vessels—largely mail boats—passing from one State to another. This renders the results somewhat unsatisfactory.

In the earlier part of this chapter attention was drawn to the custom in vogue prior to Federation of recording vessels from or to "oversea countries *via* other Commonwealth States" as *direct* from or to the oversea country. At each port in Australia these vessels were, on the inward voyage (to Australia), entered as from the oversea

country, and cleared to the next Australian port as "interstate" on the return journey—the outward voyage—they were entered as "interstate," and cleared as for the oversea country. In order to preserve the continuity of the records of the shipping communication of the several States with oversea countries this method has been followed in continuation of the pre-existing practice, excepting that vessels arriving or departing *via* other Commonwealth States are now so recorded instead of as "direct."

From the above it will be seen that while certain movements of the vessels referred to are included in the interstate shipping, other movements of the same vessels, between the same ports, are not so included.

To ascertain the aggregate movement of shipping between the States during the year 1920-21, including the total interstate movements of oversea vessels, the figures in the following table must be added to those in the table preceding:—

**SHIPPING ENTERED AND CLEARED FROM AND TO OVERSEA COUNTRIES VIA
OTHER COMMONWEALTH STATES, 1920-21.**

State.	Entered.		Cleared.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
New South Wales ..	469	1,823,007	492	1,847,025	961	3,670,032
Victoria ..	413	1,642,143	367	1,422,888	780	3,065,031
Queensland ..	119	645,703	119	623,532	238	1,269,235
South Australia ..	187	791,769	174	709,817	361	1,501,586
Western Australia ..	12	32,396	13	42,729	25	75,125
Tasmania ..	60	187,336	68	233,323	128	420,659
Northern Territory ..	..	..	..	..	..	..
Total	1920-21	1,260 5,122,354	1,233	4,879,314	2,493	10,001,668
	1910 ..	1,424 5,170,166	1,319	4,879,493	2,743	10,049,659

2. **Vessels Engaged Solely in Interstate Trade.**—If it be assumed that vessels entered in the several States as from "oversea countries *via* other Commonwealth States" have really been cleared from other States as "interstate," and further, that the vessels cleared to "oversea countries *via* other Commonwealth States" have likewise been entered as "interstate," and all such vessels be excluded, the remainder will represent vessels engaged only in the interstate trade. Applying this suggestion, and so eliminating all interstate movements of oversea vessels, the number and tonnage movement of vessels engaged solely in the interstate trade for the Commonwealth as a whole during the years 1911 to 1920-21 were as follows:—

**NUMBER AND TONNAGE OF VESSELS ENGAGED SOLELY IN INTERSTATE
TRADE, 1911 TO 1920-21.**

Year.	Entered.		Cleared.	
	No.	Tons.	No.	Tons.
1911	4,794	6,548,069	4,811	6,570,019
1912	5,000	6,809,428	4,990	6,809,426
1913	5,174	8,080,267	5,187	8,105,988
1914-15 ..	5,143	8,140,155	5,142	8,112,005
1915-16 ..	5,121	7,175,175	5,112	7,139,451
1916-17 ..	4,303	6,093,634	4,311	6,127,726
1917-18 ..	4,171	4,856,751	4,152	4,765,957
1918-19 ..	4,093	4,357,115	4,074	4,377,666
1919-20 ..	3,482	3,939,055	3,510	3,986,345
1920-21 ..	4,539	5,406,967	4,566	5,433,856

3. **Total Interstate Movement of Shipping.**—From the foregoing it is apparent that the interstate movement of shipping includes two very different elements, viz. :—
(i) Oversea ships moving from State to State, and (ii) the movement of ships engaged solely in the interstate carrying trade. These two elements are approximately as follows :—

TOTAL INWARD INTERSTATE MOVEMENT OF SHIPPING, 1908 TO 1920-21.

Vessels.	1908.	1913.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Oversea vessels moving inter-state ..	8,258,018	11,472,490	8,017,918	7,062,129	4,202,179	5,219,515	8,741,260	10,001,668
Vessels solely inter-state ..	5,961,617	8,080,267	7,175,175	6,093,634	4,856,751	4,357,115	3,939,055	5,406,967
Total ..	14,219,635	19,552,757	15,193,093	13,155,763	9,058,930	9,576,630	12,680,315	15,408,635

The following table shews the number and tonnage of vessels which entered and cleared each State during 1920-21, including the coastal movements of oversea vessels :—

INTERSTATE SHIPPING OF EACH STATE, 1920-21.

State.	Entered.		Cleared.		Total.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
New South Wales ..	2,119	5,120,365	2,048	4,931,964	4,167	10,052,329
Victoria ..	2,027	4,076,921	2,153	4,414,603	4,180	8,491,524
Queensland ..	588	1,415,936	584	1,409,079	1,172	2,825,015
South Australia ..	790	2,346,418	831	2,522,187	1,621	4,868,605
Western Australia ..	443	1,632,538	356	1,321,310	799	2,953,848
Tasmania ..	1,047	780,188	1,071	801,695	2,118	1,581,883
Northern Territory ..	18	36,269	16	34,686	34	70,955
Total	1920-21	7,032	15,408,635	7,059	15,435,524	..
	1910 ..	7,206	15,607,274	7,235	15,694,732	..

4. **Interstate and Coastal Services.**—The foundation of the coastal steamship services in Australia dates back to the year 1851, when a regular trade was established between Melbourne and Geelong by the small screw steamer *Express*. Early in the fifties a company was formed in Tasmania with a capital of £40,000 for the purpose of purchasing steamboats, and employing them in the carriage of passengers and goods between Hobart and Melbourne. This service was commenced in 1852, and was thus the first regular interstate service in Australia. About this time, the great influx of population, and the increase in commerce caused chiefly by the gold discoveries, emphasised the desirability of establishing more regular and quicker means of communication between the principal ports of Australia, and in 1862 the regular interstate service between New South Wales and Victoria was inaugurated by the s.s. *You Yangs*, which was put into commission in regular service between Melbourne, Sydney, and Newcastle. In 1875 a company was formed in Adelaide for the purpose of supplying suitable steamers for the requirements of the trade between Adelaide and Melbourne. The first two steamers of the company were named the *South Australian* and the *Victorian*, and were small vessels of only 400 tons burthen. From the start, success attended these enterprises, and the services thus initiated were rapidly extended and their operations broadened. Numerous other companies were formed to cope with the increasing trade between ports in the Commonwealth, and the companies engaged from time to time added to their fleets of steamers by the acquisition of more modern and faster vessels, until at the end of the year 1921 the total net tonnage owned by the 39 companies from whom returns have been received amounted to over 179,000 tons. A summary of the various mail services carried on during the year 1922 is given in Section XVIII of this work.

The subjoined table gives particulars, so far as they are available, of all steamships engaged in regular interstate or coastal services at the end of each of the years 1901, 1906, 1911, and 1916 to 1921. The figures for 1916 and subsequent years include particulars relating to a number of smaller companies which did not supply returns for 1901, though they were, for the most part, carrying on business in that year.

PARTICULARS OF STEAMSHIPS ENGAGED IN REGULAR INTERSTATE AND COASTAL SERVICES IN THE COMMONWEALTH, 1901 TO 1921.

Particulars.	1901.	1906.	1911.	1916.	1919.	1920.	1921.
Number of companies making returns	11	11	24	23	23	23	(a)39
Number of steamships ..	113	122	178	169	143	154	183
Tonnage .. { Gross ..	184,574	207,320	288,181	337,068	250,610	280,609	317,019
Net ..	114,080	125,560	170,062	204,357	143,143	159,293	179,393
Horse-power (Nominal) ..	18,237	20,258	29,456	34,038	27,841	29,557	32,801
Number of passengers for which licensed { 1st class ..	4,617	6,077	8,616	9,077	5,229	5,250	4,226
2nd class and steerage ..	4,490	5,906	6,256	6,578	5,524	5,632	4,642
Complement of Crew { Masters and officers ..	403	431	590	606	493	537	571
Engineers ..	332	360	491	519	409	464	551
Crew ..	2,875	3,351	4,369	5,385	3,071	4,502	4,613

(a) In this year a number of small organizations were included for the first time.

§ 6. Tonnage of Cargo Discharged and Shipped.

The following table shows the aggregate tonnage of oversea cargo discharged and shipped in Commonwealth ports, and, also, the tonnage of interstate cargo shipped in all ports for the years 1913 to 1920-21 :—

Year.	Oversea Cargo.		Interstate Cargo.
	Discharged.	Shipped.	Shipped
	tons.	tons.	tons
1913	4,415,660	6,054,984	5,047,325
1914-15	3,709,915	3,356,314	4,866,442
1915-16	3,898,599	3,459,209	5,150,723
1916-17	2,765,233	3,982,826	4,868,014
1917-18	2,012,387	2,613,561	4,833,428
1918-19	2,312,288	3,813,651	4,495,258
1919-20	2,238,298	4,984,946	4,415,909
1920-21	3,201,215	5,925,133	4,993,678

NOTE.—Cargo recorded by measurement has been converted to weight on the basis of 40 cubic feet = 1 ton.

§ 7. Commonwealth Government Shipping Activities.

1. **Local Building Programme.**—The original programme of the Commonwealth Government for building ships in Australia provided for the construction of 48 vessels, 24 of which were to be steel cargo steamers and the remaining 24 were to be wooden sailing vessels with auxiliary power. The contracts for the wooden vessels were cancelled, with the exception of two five-masted schooners to be constructed by Messrs. Kidman and Mayoh, of Sydney.

With other alterations the local building programme became as follows :—

Locality.	No.	Builders.	Type.
Williamstown, Vic. .. .	6	Commonwealth Ship Construction Branch	Steel cargo vessels
Walsh Island, N.S.W. .. .	6	N.S.W. Government .. .. .	..
Cockatoo Island, N.S.W. ..	4	Commonwealth Navy Department	..
Maryborough, Q. .. .	2	Walkers Ltd. .. .. .	..
Adelaide, S.A. .. .	3	Poole and Steel .. .. .	..

The first part of this programme, consisting of the *Delungra*, *Dinoga*, *Dilga* (built at Walsh Island), *Dromana* and *Dumosa* (built at Williamstown), and *Dundula* (built at Cockatoo Island) has been completed, and the ships put into commission. These vessels have each a deadweight capacity of approximately 5,600 tons. Three other vessels of similar dimensions, but of the shelter deck type, having a deadweight capacity of about 6,000 tons are also in commission. These are the *Emita* (built at Williamstown), and the *Eurelia* and *Enoggera* (built at Walsh Island). The *Eromanga* (built at Walsh Island), the *Eudunda* (built at Cockatoo Island), the *Erriba* (built at Williamstown),

and the *Echuca* (built by Walkers Ltd.), have been handed over to the Commonwealth Government Line. The positions of the remaining "E" class ships are as follows:—*Echunga* (Walkers Ltd.), *Eurimbla*, *Euwarra* (Messrs. Poole and Steel), and the *Euroa* (Williamstown) are almost ready for handing over. The *Erina* (Poole and Steel) is well advanced, and the *Elonera* is on the stocks at Williamstown. The two remaining vessels of the programme will be built at Cockatoo Island by the Commonwealth Navy Department. These will be of a much larger type than any vessels hitherto built in Australia. They will be 520 feet in length, with a deadweight capacity of 12,800 tons, and 250,000 cubic feet of insulated space; their speed at sea will be 13 knots. A start has already been made on the hull of one of these vessels, and the machinery is well advanced.

2. Vessels Built and Building in Great Britain.—In addition to the foregoing local building programme contracts were made for the building of five steel steamers in Great Britain; three by Vickers Ltd. and two by Beardmore and Co. These vessels have a length of 520 feet by 68 feet beam, with a deadweight capacity of 12,000 tons, and a capacity of 900,000 cubic feet, of which 370,000 cubic feet are insulated. Four of these vessels, viz., *Moreton Bay*, *Largs Bay*, *Hobson's Bay*, and *Esperance Bay*, have been delivered by the builders, and have already visited Australia. It is expected that the fifth vessel—*Jervis Bay*—will be delivered in September, 1922.

3. Commonwealth Government Line of Steamers.—The number and cargo carrying capacity of the fleet operated by the management of the Commonwealth Government Line of Steamers as at the end of July, 1922, was as follows:—

Particulars.	Number.	Deadweight Capacity.	Refrigerated Space.
		Tons.	Cub. Feet.
Vessels owned by Commonwealth Government ..	28	212,985	1,480,000
Enemy vessels operated	17	124,487	390,016
Total ..	45	337,472	1,870,016

4. Profit on Working.—From its inception in October, 1916, to the 30th June, 1921, the Line has made a profit as follows:—

From 16th October, 1916, to 30th June, 1918 ..	..	£903,500
From 1st July, 1918, to 30th June, 1919 ..	..	1,160,034
From 1st July, 1919, to 30th June, 1920 ..	..	137,959
From 1st July, 1920, to 30th June, 1921 ..	..	102,949
Total ..	..	£2,304,442

§ 8. World's Shipping Tonnage in 1914 and 1921.

The following tables, which have been taken from an article prepared by Sir Westcott Abell, K.B.E. (Chief Ship Surveyor, Lloyd's Register of Shipping), and published in *The Manchester Guardian Commercial* of the 18th May, 1922, furnish interesting information regarding the proportion of the world's shipping owned by the

various maritime countries before and after the war, and, also, regarding the size of the ships which compose the mercantile fleets of the world :—

PERCENTAGE OF THE WORLD'S TOTAL SEA-GOING STEEL AND IRON STEAM TONNAGE OWNED BY THE PRINCIPAL MARITIME COUNTRIES.

Country.	June, 1914.		June, 1921.	
	Tonnage Owned, in Millions of Tons.	Percentage of World's Total.	Tonnage Owned, in Millions of Tons.	Percentage of World's Total.
British Empire ..	20.28	47.7	21.24	39.3
United States ..	1.84	4.3	12.31	22.7
France ..	1.92	4.5	3.05	5.6
Germany ..	5.10	12.0	0.65	1.2
Greece ..	0.82	1.9	0.58	1.1
Holland ..	1.47	3.5	2.21	4.1
Italy ..	1.43	3.4	2.38	4.4
Japan ..	1.64	3.9	3.06	5.6
Spain ..	0.88	2.1	1.09	2.0
Scandinavia ..	3.68	8.7	4.19	7.7
Austria-Hungary ..	1.05	2.5	Nil	Nil
Rest of World ..	2.40	5.5	3.46	6.3
World's Total ..	42.51	100.0	54.22	100.0

APPROXIMATE GROSS TONNAGE OF THE VARIOUS LARGER TYPES OF STEAM VESSELS IN THE WORLD, IN MILLIONS OF TONS.(b)

Division of Tonnage.	British Empire.		U.S.A. (Sea-going only).		Japan.		Other Countries.		Total.(a)	
	1914.	1921.	1914.	1921.	1914.	1921.	1914.	1921.	1914.	1921.
1,500-5,000 ..	11.508	7.788	1.019	4.780	1.042	1.272	9.916	8.441	23.485	22.280
5,000-10,000 ..	5.338	8.802	0.557	7.513	0.403	1.305	4.198	5.290	10.496	22.910
10,000 and above	1.983	2.701	0.141	0.998	0.086	0.100	1.222	0.791	3.432	4.590
Totals ..	18.829	19.291	1.717	13.291	1.531	2.677	15.336	14.522	37.413	49.780

(a) Excludes American Great Lake vessels, and vessels owned in the Philippine Islands.

(b) From *Brassey's Naval and Shipping Annual* for 1921-22.

SECTION XVII.

ROADS AND RAILWAYS.

§ 1. Roads and Bridges.

1. **Introduction.**—In Year Books No. 1 (pages 541 to 551) and No. 2 (pages 675 to 685), a brief historical account was given of the construction and development of roads in Australia. It is not proposed to repeat that account in the present issue of the Year Book.

In the publication "Local Government in Australia," issued by the Commonwealth Statistician in 1919, the subject of roads is also fully discussed.

2. **Expenditure on Roads and Bridges.**—Figures shewing the total expenditure on roads and bridges in the States are not available. The subjoined statement, however, gives the amounts of total loan expenditures by the State Governments up to the 30th June, 1921 :—

ROADS AND BRIDGES.—TOTAL GOVERNMENT LOAN EXPENDITURE TO THE 30th JUNE, 1921.

State.	N.S.W. ^a	Victoria.	Q'land. ^b	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
Expenditure..	1,854,775	3,531,678	931,775	1,929,966	412,552	3,676,396	12,337,142

(a) Including punts.

(b) Including amounts from surplus revenue on which no interest is payable.

The following table shews the annual expenditure from loans on roads and bridges by the central Governments in each State during the years 1916-17 to 1920-21 :—

ROADS AND BRIDGES.—LOAN EXPENDITURE BY STATE GOVERNMENTS, 1917 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1916-17 ..	5,428	252,836	..	54,939	5,879	..	319,082 ^a
1917-18 ..	22,374	241,892	..	43,693	2,600	..	310,559 ^a
1918-19 ..	13,089	360,524	..	22,008	4,310	90,101	490,032 ^b
1919-20 ..	6,674	623,570	..	66,393	14,538	81,940	793,115 ^b
1920-21 ..	13,555	965,646	..	120,223	32,121	100,621	1,232,166 ^b

(a) Exclusive of Tasmania and Queensland. (b) Exclusive of Queensland.

The two tables given above shew only a small proportion of the actual expenditure upon roads and bridges in the different States, for the reason that (a) there have been large expenditures from revenue, both by the central Governments and by local authorities, and (b) the State Governments have in many cases voted grants and subsidies on the amount of rates collected, and have issued loans to local authorities either for the express purpose of the construction of roads and bridges or for the general purpose of public works construction. Returns of expenditure, where available, are given below for each

State. Although no revenue is now derived directly from roads and bridges, they are indirectly of great value to the community, forming, next to railways and public lands, the most considerable item of national property.

3. *New South Wales.*—The control of all roads, bridges, and ferries in New South Wales is now regulated by the Local Government Act No. 41, 1919, which came into force on the 1st January, 1920. Under the provisions of this Act, the eastern and central divisions of the State are divided into shires and municipalities for the general purposes of local government, for the endowment of which a sum of not less than £150,000 is payable annually out of the consolidated revenue on the basis of a percentage subsidy on the proceeds of the general rates received by the local governing bodies concerned. The control of all roads, bridges, and ferries (except those proclaimed "National" and those in the unincorporated areas of the Western Division) has been transferred from the Roads Department to the respective shires and municipal councils, who are now responsible for their construction and maintenance. Up to December, 1921, 58 miles of roads, 283 bridges, 55 wharves, 99 jetties, and 23 ferries have been proclaimed as "National" works. Power is given to construct new roads, to widen or close existing roads, to make by-laws for the regulation of traffic, etc.; and in the case of the acquisition of land for the purpose of constructing new roads or of widening existing roads, the provisions of the Roads Act 1902 are incorporated. The Minister for Works is empowered to pay subsidies to the local authorities to maintain the roads. The roads leading to and within areas of lands which are made available for closer settlement will be constructed by the Government prior to transfer to the shires, as also will roads required mainly for tourists in districts not likely to produce revenue in rates to the local authorities.

(i) *Principal Main Roads.* The four principal main roads in New South Wales run in the same direction as, and are roughly contiguous to, the four State-owned main railway lines. (a) *The Southern Road*, 385 miles in length, runs from Sydney to Albury, and before the days of railway construction formed part of the highway over which the interstate traffic between Melbourne and Sydney used to flow. (b) *The South Coast Road*, 250 miles long, runs from Campbelltown along the top of the coast range and across the Illawarra district as far as Bega, from which place it extends as a minor road to the southern limits of the State. (c) *The Western Road*, 513 miles long, runs through Bathurst, Orange, and many other important towns as far as Bourke, on the Darling River. (d) *The Northern Road*, 405 miles in length, runs from Morpeth, near Maitland, as far as Maryland, on the Queensland border.

(ii) *Length and Classification of Roads and Bridges.* The length of roads in the State (exclusive of 58 miles proclaimed as "National" works) in 1921 was approximately 101,698 miles, of which 10,187 miles were controlled by municipalities, 85,458 by shires, and 6,053 miles were in the unincorporated areas of the Western Division. The following table gives particulars for the year 1921 of roads classified according to whether metalled, etc., formed only, cleared only, or natural surface :—

NEW SOUTH WALES.—APPROXIMATE LENGTH OF ROADS, 1921.

Classification.	Metalled, Ballasted, Gravelled, etc.	Formed only.	Cleared only.	Natural surface.	Total.
	Miles.	Miles.	Miles.	Miles.	Miles.
Metropolitan	1,742	549	249	206	2,746
Country municipalities	2,732	1,363	1,913	1,433	7,441
Shires	17,216	12,200	26,538	29,504	85,458
Western Division (unincorporated) ..	213	163	3,437	2,240	6,053
Total	21,903	14,275	32,137	33,383	101,698

(iii) *Bridges, Culverts, and Ferries.* The more important bridges have been proclaimed under the provisions of the Local Government Act as "National" works (see above), and these, together with the bridges, etc., in the Western Division, remain under the control of, and are maintained by the Public Works Department. Particulars of bridges, culverts, and ferries in the State in 1921, are given in the following table:—

NEW SOUTH WALES.—BRIDGES, CULVERTS, AND FERRIES, 1921.

Particulars.	Bridges.		Culverts.		Ferries.
	No.	Length.	No.	Length.	No.
		Feet.		Feet.	
"National" works	283	108,631	..	..	23
Metropolitan	140	7,521	1,384	109,257	1
Country municipalities	605	33,741	3,283	134,637	25
Shires	3,627	223,126	35,287	341,770	175
Western Division (unincorporated) ..	99	13,602	340	4,573	6
Total	4,754	386,621	40,294	590,237	230

(iv) *Expenditure on Roads and Bridges.* Since the year 1857 the total expenditure by the Roads Department and Road Trusts on roads and bridges is £25,565,748. In this expenditure is included the cost of administering the Department, services for other Departments, and payments on account of punt approaches and similar works incidental to the road traffic of the country. The amount expended from 1857 to the 30th June, 1914, and for each succeeding financial year up to 1920, is given below. Until recent years, the expenditure on these works increased at a much faster rate than the population.

NEW SOUTH WALES.—EXPENDITURE BY ROADS DEPARTMENT AND ROAD TRUSTS, 1857 TO 1920.

Period.	Expenditure by Roads Department.	Expenditure by Trustees.	Total.
	£	£	£
1857 to 30th June, 1915	23,857,921	1,288,691	25,146,612
1915-16	65,928	..	65,928
1916-17	74,124	..	74,124
1917-18	74,459	..	74,459
1918-19	88,591	..	88,591
1919-20	116,034	..	116,034
Total	24,277,057	1,288,691	25,565,748

The expenditure by the Department is now limited to the construction of roads in closer settlement areas and to the construction and maintenance of national bridges and ferries, and of works in the unincorporated areas of the Western Division.

4. *Victoria.*—Under the Local Government Act 1915, the control, construction, and maintenance of all roads, streets, and bridges are in the hands of municipal councils, which are empowered to open new roads, and to close, divert, or increase the width of any existing street or road, provided that no new road less than one chain in width may be opened without the consent of the Minister.

(i) *Country Roads Board.* With the object of improving the main roads of the State, an Act (No. 2415) was passed on 23rd December, 1912, which empowered the Governor in Council to appoint a board, to consist of three members.

The duties of the board are to ascertain by survey and investigation what roads are main roads; the nature and extent of the resources of Victoria in metals, minerals, and materials suitable for the purposes of road-making and maintenance, and the most effective and economical methods for dealing with the same, and for supplying and utilizing the material in any part of Victoria; the most effective methods of road construction and maintenance; what deviations (if any) in existing roads or what new roads should be made so as to facilitate communication and improve the conditions of traffic; and to record, publish, and make available for general information the results of all such surveys and investigations. The duty of furnishing information that may be required is imposed on the municipal authorities.

The construction of permanent works and the maintenance of main roads are likewise to be carried out by the municipalities to the satisfaction of the board. The total cost of the works, in the first instance, is to be paid by the Treasury, but subsequently one-half of the amount expended on permanent works and maintenance is to be refunded by the municipalities affected.

For the construction of developmental or feeder roads to the main road system the Developmental Roads Act (No. 2944) was passed in 1918. Under the authority of this Act the Country Roads Board is empowered to spend a sum of £500,000 over a period of five years on some of the more important roads in the less developed and neglected parts of the State. This sum was subsequently increased to £2,000,000 (Act No. 2985). The amount expended during the year 1919-20 under this Act was £315,701.

For the purpose of making permanent works, power is given to the Governor in Council to issue stock or debentures to the amount of £400,000 a year for five years, and the principal and interest are a charge upon the Consolidated Revenue of the State. The money so raised is to be placed to the credit of an account to be called the "Country Roads Loan Account," which will be debited with all payments made by the Treasurer towards the cost of permanent works. A further sum of £500,000 was made available under Act No. 3057 passed in September, 1920, to be raised in the two financial years 1920-21 and 1921-22, at the rate of £250,000 per annum. A sinking fund of 1 per cent. per annum on half the amount borrowed is authorised to be paid out of the Consolidated Revenue until half of the amount borrowed is redeemed. An annual payment to the Treasurer of 6 per cent. on the amount due by each municipality in respect of permanent works is provided for, and the cost of maintenance allocated to each municipality must be paid before the 1st July in each year. A special rate not to exceed 6d. in the £1 on the net annual value of rateable property, to meet the cost of permanent works, may be levied in any ward or riding of a municipality as the council may direct. In the event of default of payment by a municipality, the board may levy a rate to meet the amount owing. For maintenance works an annual payment of £50,000 to the Country Roads Board Fund from the Consolidated Revenue is provided for by Act No. 2986 and power is given to reduce contributions of the municipalities in respect to the maintenance of main roads where the Board is satisfied that the cost of maintenance is excessive, and that such cost is due to motor traffic not of local origin or to timber traffic. All fees and fines paid under the Motor Car Act, all moneys standing to the credit of the Municipal Fees and Fines Trust Fund, all fees paid on the registration or renewal of the registration of traction engines, and all fees received by the Crown after the 30th June, 1912, under the Unused Roads and Water Frontages Act 1903 (which has been incorporated in the Local Government Act 1915), are to be credited to the Country Roads Board Fund.

Up to the 30th June, 1918, there were 6,500 miles of declared main roads, agreed to by the councils and gazetted. The total amount expended during 1919-20 for permanent works was £335,755, and for maintenance work £192,320, a total of £528,075. The net receipts for the year were £294,498, of which amount the chief items were motor registration and license fees, £85,363, unused roads and water frontages license fees, £22,072, contributions by municipalities for permanent works, £37,573; ditto for maintenance works, £89,730; and appropriation for maintenance under the Main Roads Act No. 2986, £50,000.

(ii) *General and Local Government Expenditure.* The gross amount expended directly by the State Government of Victoria on roads and bridges up to the end of June, 1920, was £8,825,239. The annual expenditure from ordinary revenue by municipalities is not returned separately, but is included in Public Works Construction and Maintenance

(see Section XXVI., *Local Government*). The subjoined table shows the cost from general revenue of municipalities of private streets, roads, etc., and the amounts of municipal loan expenditure in 1901 and from 1917 to 1921:—

VICTORIA.—EXPENDITURE ON ROADS AND BRIDGES, 1901 AND 1917 TO 1921.

Financial Year.(a)	Expenditure by State Government.	Municipal Loan Expenditure.		Formation of Private Roads, Streets, Lanes, etc.(b)	
		Cities, Towns, and Boroughs	Shires.	Cities, Towns, and Boroughs.	Shires.
	£	£	£	£	£
1901	72,890	16,844	12,928	18,829	4,521
1917	16,514	41,686	7,279	60,277	3,222
1918	19,782	22,037	19,007	72,506	2,968
1919	20,591	31,864	13,194	103,493	7,632
1920	7,832	32,974	11,402	77,858	4,888
1921	10,842	(c)	(c)	(c)	(c)

(a) The financial years of Melbourne and Geelong end on the 31st December and the 31st August respectively; those of all other municipalities on the 30th September.

(b) Including the cost of flagging, asphaltting footpaths, etc., but exclusive of loan expenditure.

(c) Not available.

5. **Queensland.**—In Queensland the construction and maintenance of public roads are controlled under a system of local self-government, for the purposes of which the whole State is divided into (a) cities, (b) towns, and (c) shires. The duties, rights, and responsibilities of the local authorities with regard to roads, streets, and bridges are regulated by the Local Authorities Act of 1902 and subsequent amendments. The councils are invested with full powers to open, close, divert, or widen streets, roads, and bridges, and to make by-laws for the regulation of traffic, etc. The rates which the councils are empowered to levy are supplemented by Government grants. Separate returns as to the expenditure by towns and shires on roads and bridges are not available, the amounts being included in the returns of expenditure on public works, particulars as to which expenditure may be found in Section XXVI., *Local Government*, hereinafter. Under the Main Roads Act of 1920, a main roads board is appointed to take over main roads and construct new ones. The cost is defrayed from moneys appropriated by Parliament, taxes on motor vehicles and traction engines, wheel tax, fees for unused roads, etc. Half the amount expended is to be recovered from local authorities within 30 years with interest. The Main Roads Board has just commenced operations, and figures shewing details of its activities are not yet available for publication.

6. **South Australia.**—Information regarding the length of roads and streets in the incorporated area is not available in this State for a later date than 1919; figures shewing the expenditure by Corporations and District Councils on streets, roads and bridges up to 30th June, 1920, however, are contained in the tables hereinafter (p. 529). Of the several Australian States, South Australia has by far the largest unincorporated area, no less than 88 per cent. of the whole area of the State being in this condition. This area is, however, very sparsely populated and much of it is entirely unoccupied. The remainder of the State is for the purposes of local government under the control of Municipal Corporations and District Councils. Under the provisions of the District Councils Acts 1914, 1917, and 1918, the Municipal Corporations Acts 1890 to 1918, and of the Roads Acts 1884 to 1915, the councils are invested with full powers as to the opening and making of new streets and roads, and the diverting, altering, or increasing the width of existing roads; as to raising, lowering, or altering the ground or soil of any street or road; and as to the construction, purchase, and management of bridges, culverts, ferries, and jetties.

(i) *Main Roads and District Roads.* All the roads in each district are classified either as main roads or as district roads. Both classes of roads are under the direct control either of Municipal Corporations or of District Councils, but in the case of main roads the expenditure on construction and maintenance is chiefly provided for by

Government grants, which are paid into a Government grants account, while the expenditure on district roads is paid for out of general rates, and out of subsidies on the amount of such rates granted by the central Government. Under the Roads Amendment Act 1915, a number of roads were declared to be main roads. The Main Roads Fund Act 1920 provides for the raising of £150,000 for the purpose of reconstructing main roads and bridges, and acquiring and working quarries.

The total estimated length of streets and roads in the incorporated area in South Australia up to the 30th June, 1919, was as follows :—

SOUTH AUSTRALIA.—ESTIMATED LENGTH OF ROADS AND STREETS IN THE INCORPORATED AREA, 1919.

Particulars.	Woodblocked.	Macadamised.	Other.	Total.
Miles	10	10,529	32,855	43,394

(ii) *Expenditure by Corporations on Main and District Roads.* The following table shews the expenditure by municipal corporations on both main and district roads for each year from 1916 to 1920 inclusive :—

SOUTH AUSTRALIA.—EXPENDITURE BY CORPORATIONS ON STREETS, ROADS, AND BRIDGES, 1916 TO 1920.

Year ended 30th November—	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Con- struction.	Main- tenance.	From Main Road Grants.	Total.	Con- struction.	Main- tenance.
	£	£	£	£	£	£
1916	25,483	73,118	9,669	12,098	88	13,679
1917	15,952	80,106	14,299	15,787	619	13,073
1918	13,983	89,657	10,490	13,033	1,990	12,524
1919	14,535	99,567	12,466	14,734	..	15,263
1920	10,818	104,205	13,634	16,703	3,083	13,130

(iii) *Expenditure by District Councils on Main and District Roads.* The following table gives similar information with respect to main and district roads under the control of district councils :—

SOUTH AUSTRALIA.—EXPENDITURE BY DISTRICT COUNCILS ON STREETS, ROADS, AND BRIDGES, 1916 TO 1920.

Year ended 30th June—	District Roads.		Main Roads Fund.			
	Expenditure.		Receipts.		Expenditure.	
	Con- struction.	Main- tenance.	From Main Road Grants.	Total.	Con- struction.	Main- tenance.
	£	£	£	£	£	£
1916	41,283	79,515	83,264	84,738	12,493	61,172
1917	47,337	79,377	109,044	111,567	18,809	72,644
1918	62,280	103,219	126,682	126,865	41,319	103,312
1919	67,194	108,862	120,635	120,790	28,481	97,991
1920	71,145	108,657	122,435	128,345	27,404	83,717

7. **Western Australia.**—In Western Australia the construction, maintenance, and management of roads and bridges throughout the State are under the control of municipalities constituted by the Municipal Corporations Acts 1906-1919, and district road boards constituted by the Road Districts Act 1919.

(i) *District Roads and Bridges.* Under the provisions of the Road Districts Act any part of the State, not within a municipality, may be constituted by the Governor in Council into a road district, under the control of a board of not less than five nor more than thirteen members elected by the ratepayers. The board is invested with full powers for controlling and managing all roads and bridges within the district. A district road board may not, however, construct any road or street less than sixty-six feet wide without the consent of the Minister. The construction of the more important bridges and culverts is generally carried out by the Government, the work, after completion, being handed over to the road board for maintenance. In case of land being required for the purpose of constructing a new street or road, or for widening an existing street or road, the provisions of the Public Works Act of 1902 are incorporated in the Road Districts Act.

(ii) *Municipal Streets, Roads, and Bridges.* As regards roads, streets, and bridges within municipalities, these are under the control of local authorities elected under the provisions of the Municipal Corporations Acts 1906-19. The municipal councils are invested with full powers for making, maintaining, and managing all streets, roads, and bridges within the municipal area, and may request the Governor to declare any such land reserved, used, or by purchase or exchange acquired for a street or way, to be a public highway, and on such request the Governor may, by notice in the *Gazette*, proclaim such highway absolutely dedicated to the public.

(iii) *Length of Roads, Number of Bridges, and Expenditure on Roads and Bridges.* The following table gives particulars of the operations of the Road Boards for the years 1917 to 1921 :—

WESTERN AUSTRALIA.—PARTICULARS OF ROADS UNDER CONTROL OF DISTRICT ROAD BOARDS, 1917 TO 1921.

Year ended 30th June.	Road Districts.	Revenue.				Expenditure.	Length of Cleared Roads.(d)				No. of Bridges and Culverts.	
		From Rates.	From Grants and Subsidies.	From other Sources.	Total.		Cleared only.	Cleared and Formed.	Metalled or otherwise Constructed.	Total.	Bridges.	Culverts.
		£	£	£	£		Miles.	Miles.	Miles.	Miles.	No.	No.
1917	117	113,686	30,226	55,383	199,295	189,177	19,903	5,680	4,359	29,942b	839b	7,433b
1918	116	116,245	32,594	46,187	195,026	206,165	20,691	5,937	4,390	31,018a	906a	7,817a
1919	118	118,144	27,692	53,748	199,584	204,112	22,455	6,645	4,569	33,669b	937b	8,062b
1920	118	135,644	53,234	68,902	257,780	243,365	22,986	6,926	4,770	34,632c	960c	8,355
1921	119	149,904	39,172	85,659	274,735	285,216	24,853	6,876	4,777	36,506	965	8,730

(a) Exclusive of two Boards which have not supplied the information. (b) Exclusive of three Boards.
(c) Exclusive of one Board. (d) Approximate only.

The following table gives similar information with reference to roads controlled by municipalities under the Municipal Corporations Acts 1906-19 :—

WESTERN AUSTRALIA.—PARTICULARS OF STREETS, ROADS, AND BRIDGES UNDER THE CONTROL OF MUNICIPALITIES, 1917 TO 1921.

Year ended 31st October.	No. of Municipalities.	Length of Streets and Roads.(a)					Revenue.		Expenditure.	
		Paved, Metalled, or Gravelled.	Formed only.	Cleared only.	Not Cleared.	Total.	From Rates.	From Grants.	Works and Improvements.	Street Lighting and Watering.
		Miles.	Miles.	Miles.	Miles.	Miles.	£	£	£	£
1917 ..	28	562	94	244	238	1,138	167,997	7,813	73,991	23,481
1918 ..	25	562	103	231	224	1,120	171,315	1,870	75,086	25,580
1919 ..	23	570	109	220	219	1,118	177,408	3,595	71,907	24,036
1920 ..	23	560	93	254	227	1,134	190,171	1,142	95,194	25,283
1921 ..	22	569	101	258	212	1,140	250,356	710	132,011	26,481

(a) Approximate only.

8. *Tasmania.*—(i) *Construction.* In Tasmania the cost of construction of roads, tracks, and bridges (and in earlier days of streets) has been borne almost entirely by the central Government.

Up to the 30th June, 1921, the loan expenditure on these works has been £3,676,396. In addition, half the proceeds of the sale of land has formed a Crown Lands Fund for the construction of roads to new holdings. Under this provision £650,418 has been expended. This fund has in recent years more than met the demands on it, and expenditure therefrom since 1913 has been limited to £10,000 annually, the balance being used for redemption of debt.

ROADS, STREETS, TRACKS, AND BRIDGES—EXPENDITURE ON CONSTRUCTION.

Period.	Expenditure.		New-road Mileage.		New Bridges.
	Loans.	Crown Lands Fund.	Cleared.	Metalled.	
	£	£	Miles.	Miles.	No.
Total up to 31st December, 1902 ..	1,932,919	332,845	..	..	..
Yearly average—					
1903-7 ..	30,611	26,845	103	26	11
1907-11 ..	92,416	21,946	205	105	13
1911-15 ..	160,730	18,233	234	208	50
1915-19 ..	105,097	6,186	94	113	49
Year 1919-20 ..	81,940	6,563	67	68	17
Year 1920-21 ..	100,621	4,744	62	80	8
Total to 30th June, 1921 ..	3,676,396	650,418	..	..	..

The total length of roads at the end of 1921 may be taken as approximately 12,000 miles, of which about half is metalled or gravelled.

(ii) *Maintenance.* The maintenance of roads and bridges is undertaken by the municipalities with some assistance from the central Government, chiefly by way of subsidy. Under the Aid to Road Rates Act, £11,000 are distributed annually among the municipalities, in proportion as the cost of maintenance falls on their resources. Under the Main Roads Maintenance Act 1918 a further sum of £5,000 was provided out of Consolidated Revenue, which, with the addition of the Motor Tax, less 5 per cent., and a contribution from municipalities, is expended on the upkeep of main roads. In 1921 the amount available for 1,040 miles of main road was £22,898. The work is carried out in most cases by municipalities, under the general direction of an Advisory Board, on which the Government, the municipalities, and the motorists are all represented. Further, the Repairs to Roads Act 1920 provides for loans for 15 years to municipalities for the purpose of re-making roads—half the loan is repaid in instalments by the local body and the remainder by the State Government. The Government also provides for the repair of the more important bridges and for emergency work.

The municipal expenditure on roads (excluding Hobart and Launceston streets) is practically supplied by the road rate, which must by law be between sixpence and eighteen pence in the pound of annual value. The average road rate actually collected has slightly increased from 10.7 pence in the pound in 1903 (the first year of the present municipalities) to 11.6 pence in the pound in 1918.

**EXPENDITURE ON MAINTENANCE OF ROADS AND BRIDGES IN MUNICIPALITIES
(EXCLUDING HOBART AND LAUNCESTON), 1908 TO 1921.**

Year.					From Municipal Road Rate.	From State Revenue.
					£	£
1908	..	..	..	..	42,240	17,339
Average 1909-12	..	..	..	..	48,759	19,259
Average 1913-17	..	..	..	..	55,722	20,123
1919	..	..	..	..	61,316	29,986
1920	..	..	..	..	65,241	30,006
1921	..	..	..	..	(a)	31,489

(a) Not available.

§ 2. Railways.

(A) General.

1. **Introduction.**—In the issues of the Commonwealth Year Book, Nos. 1 to 7, the statistics of all Government railway systems were treated under the head of *Government Railways*. In the following issues, Nos. 8 to 14, the greater part of those statistics relating to State-owned lines was dealt with separately from those under the control of the Commonwealth Government. This arrangement is continued in the present issue. The State railways are referred to throughout as “State” and the Commonwealth railways as “Federal” railways. There is, however, a summary of the working of the Federal and States’ railways in part (E) of the present section.

2. **Railway Statistics.**—In some of the earlier issues of the Year Book will be found a condensation of the report issued in 1909 by the Commonwealth Statistician to the Minister for Home Affairs on the subject of *The Desirability of Improved Statistics of Government Railways, in Australia* (see Year Book No. 7, page 598).

3. **Railway Communication in the Commonwealth.**—An account of the progress of railway construction in Australia since the opening of the first line in 1854 will be found in Year Book No. 6, p. 681. In the eastern, south-eastern, and southern parts of Australia there now exists a considerable network of railway lines converging from the various agricultural, pastoral, and mining districts towards the principal ports, which are themselves connected by systems of lines running approximately parallel to the coast. In the east, lines radiating from Cairns, Townsville, Rockhampton, Brisbane, and Sydney extend inland in various directions for distances ranging up to over 600 miles; in the south-east there are numerous lines, those in Victoria converging towards Melbourne, while others in New South Wales have their terminus in Sydney; in the south there are four main lines, with numerous branches, running from Melbourne, while from Adelaide one main line, with several branches to the coastal towns, runs inland in a northerly direction for a distance of nearly 700 miles, and another line runs in a south-easterly direction to various ports, meeting the main line from Melbourne on the border of South Australia and Victoria near Serviceton. The South Australian and Victorian railway systems also meet on the border at two other points, one near Pinnaroo, and the other at Rennick near Mount Gambier. By the opening, in 1917, of the Trans-Australian railway from Port Augusta to Kalgoorlie, through communication by rail was established between the eastern States and the Western Australian railway system. The main interstate line, which permits of direct communication between the five capital cities—Brisbane, Sydney, Melbourne, Adelaide, and Perth—covers a distance from end to end of 3,474.80 miles or 3,479.82 miles via Newcastle. The scheduled time for the journey from Brisbane to Perth is six days one hour forty-two minutes, and from Perth to Brisbane five days twenty-one hours forty minutes, the time in each case being taken over all.

In the following tables particulars are given of the gauges of lines, changing stations and duration of stops thereat, arrival and departure times, distances and average speeds on the journey from Brisbane to Perth, and vice versa :—

BRISBANE TO PERTH.

Gauge of Line.	Terminal or Changing Stations.	Times.		Day on Journey. (a)	Actual Time.	Duration of Stops at Changing Stations.	Intermediate Distance.	Total Distance from Brisbane.	Average Speed (b)
		Arr.	Dep.						
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
3 6	Brisbane ..	5.55 p.m.	8.5 a.m.	Monday..	—	—	—	—	—
4 8½	Wallangarra ..	6.17 p.m.	6.17 p.m.	" ..	9 50	0 22	223.46	223.46	22.72
4 8½	Sydney ..	11.25 a.m.	7.25 p.m.	Tuesday ..	17 8	8 00	c497.38	720.84	29.03
5 3	Albury ..	7.23 a.m.	7.47 a.m.	Wednesday	11 58	0 24	401.62	1,122.46	33.56
5 3	Melbourne ..	12.51 p.m.	4.30 p.m.	" ..	5 4	3 39	190.50	1,312.96	37.60
5 3	Adelaide ..	9.55 a.m.	10.45 a.m.	Thursday ..	17 25	0 50	483.05	1,796.01	27.73
5 3	Terowie ..	3.40 p.m.	4.10 p.m.	" ..	4 55	0 30	139.81	1,935.82	28.44
3 6	Port Augusta ..	10.5 p.m.	10.40 p.m.	" ..	5 55	0 35	119.33	2,055.15	20.17
4 8½	Kalgoorlie ..	11.53 a.m.	5.15 p.m.	Saturday ..	37 13	5 22	1,051.45	3,106.60	28.25
3 6	Perth ..	9.47 a.m.	—	Sunday ..	16 32	—	373.22	3,479.82	22.57
	Total ..				126 00	19 42	3,479.82	—	27.62

PERTH TO BRISBANE.

Gauge of Line.	Terminal or Changing Stations.	Times.		Day on Journey. (a)	Actual Time.	Duration of Stops at Changing Stations.	Intermediate Distance.	Total Distance from Perth.	Average Speed. (b)
		Arr.	Dep.						
ft. in.					h. m.	h. m.	miles.	miles.	m.p.h.
3 6	Perth ..	—	9.0 p.m.	Monday..	—	—	—	—	—
3 6	Kalgoorlie ..	1.49 p.m.	2.15 p.m.	Tuesday ..	16 49	0 26	373.22	373.22	22.33
4 8½	Port Augusta ..	5.0 a.m.	8.30 a.m.	Thursday ..	38 45	3 30	1,051.45	1,424.67	27.13
3 6	Terowie ..	2.46 p.m.	3.16 p.m.	" ..	6 16	0 30	119.33	1,544.00	19.04
5 3	Adelaide ..	7.50 p.m.	8.30 p.m.	" ..	4 34	0 40	139.81	1,683.81	30.82
5 3	Melbourne ..	1.3 p.m.	5.0 p.m.	Friday ..	16 33	3 57	483.05	2,166.86	29.19
5 3	Albury ..	10.21 p.m.	10.40 p.m.	" ..	5 21	0 19	190.50	2,357.36	35.61
4 8½	Sydney ..	10.45 a.m.	3.30 p.m.	" (e) ..	12 5	28 45	401.62	2,758.98	33.24
4 8½	Wallangarra ..	9.5 a.m.	9.30 a.m.	Monday..	17 35	0 25	c497.38	3,256.36	28.29
3 6	Brisbane ..	6.40 p.m.	—	" ..	9 10	—	223.46	3,479.82	24.38
	Total ..				127 08	38 32	3,479.82	—	27.39

(a) The days here given are for the purposes of time table interpretation. They are not the only days on which the service is provided. (b) Inclusive of stops between changing stations. (c) Runs via Newcastle. (d) 10.23 a.m. on Tuesday and Thursday and 11.53 a.m. on Saturday. (e) Arrives 10.45 a.m. on Saturdays and departs 3.30 p.m. on Sundays.

The time allowed for the journey from Port Augusta to Kalgoorlie, 37 hours 13 minutes (actual), gives an average speed of 29.44 miles per hour throughout, inclusive of stoppages. Exclusive of stoppages, which aggregate slightly under three hours, the average speed is approximately 30 miles per hour. In the opposite direction the gross time is 38 hours 45 minutes (actual), which gives an average speed of 27.13 miles per hour. Exclusive of stoppages, which aggregate about 3 hours 10 minutes, the average speed is about 29.55 miles per hour.

The average speed inclusive of all stops on the journey from Brisbane to Perth is 23.88 miles per hour, and from Perth to Brisbane 21.00 miles per hour.

The longest railway journey which can be undertaken in Australia, on one continuous line of railway, is from Longreach in Queensland to Meekatharra in Western Australia, a total distance of 4,760.31 miles.

In Western Australia there is a connected system of main or trunk lines between the ports of the State and the agricultural, pastoral, and mining districts, while there are also two short lines, one on the north-west, the other on the south coast, which are unconnected with the main system. In the northern parts of Queensland and in the Northern Territory there are also several disconnected lines running inland from the more important ports. In Tasmania the principal towns are connected by a system of lines, and there are also, more especially in the western districts, several lines which have been constructed for the purpose of opening up mining districts.

4. **Standard Times in Australia.**—In Year Book No. 12, p 630, particulars are given in regard to standard times now in use in the Australian States, and an explanation is made as to the mode in which the difference of time between Adelaide and Perth is dealt with on the Trans-Australian Railway. Owing to limits of space it is not possible to repeat this information in the present volume.

5. **Non-conformity of Gauge.**—With but few exceptions, all the railway lines in the Commonwealth open for general traffic are now owned and managed by the respective States in whose territory they run, or by the Commonwealth Government; but, unfortunately for the purpose of interstate traffic, the construction of the various systems in different parts of Australia has proceeded without uniformity of gauge. In 1846 Mr. Gladstone, then Colonial Secretary, recommended in a despatch to the Governor of New South Wales that the 4-ft. 8½-in. gauge should be adopted. In 1850, however, the engineer to the Sydney Railroad and Tramway Company strongly advocated the adoption of the 5-ft. 3-in. gauge, and in 1852 an Act was passed making it compulsory that all railways in New South Wales should be constructed to the wider gauge, the Governors of Victoria and South Australia being duly advised of the step that had been taken. In 1852, however, the company mentioned having changed its engineer, also changed its views as to the gauge question, and in the following year succeeded in obtaining the repeal of the Act of 1852 and in securing the passing of another, under the provisions of which the narrower gauge was made imperative. This step was taken without the concurrence of the other States concerned, and a considerable amount of ill-feeling arose, especially in Victoria, where two private companies had already placed large orders for rolling stock to be constructed to the broad gauge originally chosen. The result was that it was decided in Victoria to adhere to the 5-ft. 3-in. gauge as the standard gauge for the State, while the Sydney Railroad and Tramway Company proceeded with the construction of its lines to the 4-ft. 8½-in. gauge, and these two gauges have since been adhered to as the standard gauges of the respective States. The Queensland Government had, at the outset, adopted a gauge of 3-ft. 6-in. as being best suited to the requirements of the colony, and has since adhered to that gauge throughout the State, so that all goods requiring conveyance into New South Wales or vice versa have to be transhipped at the boundary between the two States. In June, 1914, however, the Queensland Government purchased two short lengths of line laid on a 2-ft. gauge. In South Australia the 5-ft. 3-in. gauge was adopted, but in 1870, on the grounds of economy, the 3-ft. 6-in. gauge was introduced, and many of the lines in South Australia have been constructed with that gauge. The interstate line between Adelaide and Melbourne was opened as a through route in January, 1887, and is of the 5-ft. 3-in. gauge throughout. At the 30th June, 1921, of the 2,333.19 miles of State Government railways in South Australia 1,209.59 miles were of 3-ft. 6-in. gauge, exclusive of 477.95 miles of the same gauge from Port Augusta to Oodnadatta belonging to the Federal Government. In the Northern Territory the line from Darwin to Emungalan (Katherine River), 198.68 miles in length, is of 3-ft. 6-in. gauge. In Western Australia the 3-ft. 6-in. gauge was also adopted. In Tasmania the first line made had a gauge of 5-ft. 3-in., but it was converted in 1887 to 3-ft. 6-in., which, with the exception of three short lines with a 2-ft. gauge, is the present gauge of the Government and most of the privately-owned lines. It was recognised in both these States that the construction of railways was essential to their proper development, but as their financial resources would not bear a heavy initial expenditure in connexion with the establishment of railway lines, it was decided to adopt the narrow gauge. In Victoria, short lengths of light railways have been constructed to a gauge of 2-ft. 6-in. of an aggregate length of 121.90 miles.

6. **Interstate Communication.**—Until the railway systems of the eastern States were connected at the common boundaries, the inconvenience of non-conformity of gauge was not felt. Since then, however, the necessary transshipments of both passengers and goods have been a source of increasing trouble, delay, and expense. On the 14th June, 1883, a railway bridge over the River Murray at Wedonga was opened for traffic, and railway communication was then established between Melbourne and Sydney. On the 19th January, 1887, the last section of the Victorian line to Serviceton, on the South Australian border, was completed, and a junction was thus effected with the South Australian line to Adelaide. On the 16th January, 1888, a junction was effected between the New South Wales and Queensland lines at Wallangarra, but there was still a break in the

line from Sydney at the Hawkesbury River, thirty-six miles from Sydney. This last link was, however, completed on the 1st May, 1889, by the opening of the Hawkesbury River bridge, 2,900 feet in length, and railway communication was thus established between the four capital cities, Brisbane, Sydney, Melbourne, and Adelaide.

By the opening of the Trans-Australian railway, to which reference has already been made, Western Australia is now linked to the other States, and an unbroken line of communication established from one side of the continent to the other. The construction, moreover, of lines decided upon, and in some cases already made, connecting Victoria with the Riverina district in New South Wales and with the wheat-growing districts of South Australia, will undoubtedly facilitate interstate exchange and will allow the produce of inland areas to find its natural outlet at the nearest port.

7. Unification of Gauge.—The question of the unification of gauge in the several States has been under consideration for several years, and numerous conferences on the subject have been held from time to time between the several Railway Commissioners and between the Premiers of the States concerned. Reference to these conferences have been made in previous issues of the Year Book (see No. 11, pp. 657–8, and No. 14, pp. 563–4).

In July, 1920, a conference took place at Melbourne between the Commonwealth and State representatives of three Governments, and a decision was arrived at under which a committee, consisting of two experts from abroad and an Australian representative not connected with the railways, was to consider the whole question of gauge unification, and report to the various Governments concerned as to the best course to be adopted.

On 8th February, 1921, the Governor-General appointed a Royal Commission, consisting of two railway engineers—one civil and one mechanical—together with an independent commissioner to inquire into and report on the question of the unification of gauges. The Commission was constituted as follows:—Chairman, Mr. John James Garvan; Civil Engineer, Mr. Rustat Blake; Mechanical Engineer, Mr. Frederick Methven Whyte; with Mr. E. Simms as Secretary.

The result of the Commission's work was a recommendation that the gauge of 4-ft. 8½-in. be adopted as the standard for Australia; that no mechanical, third rail, or other device would meet the situation, and that uniformity could be secured by one means only, viz., by conversion of the gauges other than 4-ft. 8½-in.

The matter was discussed at a Conference of the Prime Minister with the Premiers in Melbourne, November, 1921, when it was decided to adopt 4-ft. 8½-in. as the standard gauge for Australia. At this Conference it was also resolved that the adoption of a uniform gauge is essential to the development and safety of the Commonwealth.

The scheme advocated by the Royal Commission as the first step will provide a standard 4-ft. 8½-in. gauge railway between Brisbane and Fremantle, and the conversion of the whole of the broad-gauge lines of Victoria and South Australia, at an estimated cost of £21,600,000, spread over a period of approximately eight years.

The details of the estimate of £21,600,000 for providing a main trunk line between Fremantle and Brisbane, and converting the 5-ft. 3-in. gauge lines of Victoria and South Australia are as shewn in the following table, which also includes an estimate of the cost within each State and the Commonwealth Territory together with the quota from each State and the Commonwealth, in terms of the allocation of cost agreed upon:—

State.	Alterations to existing railways and structures.	New Lines necessary.	Adjustments of Rolling Stock.	Total cost of work within the State.	Quota.
	£	£	£	£	£
New South Wales ..	800,000	857,000	..	1,657,000	7,094,388
Victoria ..	5,246,000	..	3,078,000	8,324,000	4,939,349
Queensland ..	..	1,250,000	598,000	1,848,000	2,535,868
South Australia ..	1,706,000	1,646,000	1,322,000	4,674,000	1,632,292
Western Australia ..	1,260,000	3,120,000	650,000	5,030,000	1,078,103
Commonwealth ..	..	..	67,000	67,000	4,320,000
Total ..	9,012,000	6,873,000	5,715,000	21,600,000	21,600,000

The estimated cost of conversion of the whole of the lines in the States concerned is £57,200,000, made up as follows:—

(a) Alterations to existing railways and structures ..	£48,355,000
(b) Construction of any new lines necessary ..	£2,596,000
(c) Adjustment of rolling stock	£6,249,000

This estimate includes the 3-ft. 6-in. lines in isolated parts of Western Australia and the independent lines of Northern Queensland, those of South Australia on the Eyre Peninsula, and those Commonwealth Government lines running to Oodnadatta and from Darwin to Emungalan. All of these lines will probably be worked as at present for some considerable time. The cost of conversion of rolling stock at present in use is not included.

8. **Rolling Stock Gauges.**—Allied to the question of the gauges of the railways of Australia is that of the rolling stock gauges which are in use, the rolling stock gauge being the maximum transverse dimensions to which the rolling stock may be constructed. In the following table will be found particulars of the rolling stock gauges, together with maximum length and weights of vehicles, at present in use on the Government railways, State and Federal:—

**STATE AND FEDERAL GOVERNMENT RAILWAYS.—ROLLING STOCK GAUGES
IN USE, 1921.**

PASSENGER ROLLING STOCK.

Railway.	Gauge of Track.	Maximum Rolling Stock Gauge.				Maximum Tare.	
		Width.	Height above Rail Level.	Length over all.			
		ft. in.	ft. in.	ft. in.	ft. in.	t. c.	q.
New South Wales	4 8½	10 6	14 0	74 4½	44 2	1	
Victoria	5 3	10 0	14 2	74 1½	47 16	0	
"	2 6	7 0½	10 4½	31 8	8 11	0	
Queensland	3 6	9 4	12 9	55 5	26 17	0	
"	2 0	6 3½	10 0	22 0	3 0	0	
South Australia	5 3	10 4½	14 1¾	74 1¼	40 11	0	
"	3 6	9 4¾	12 1	62 6	24 18	0	
Western Australia	3 6	8 10	12 7	61 9	31 10	0	
Tasmania	3 6	9 6	12 5	64 0	30 0	0	
"	2 0	6 6	10 0	30 2	5 10	1	
Federal—							
Trans-Australian	4 8½	10 6	14 6	78 11½	48 0	0	
Northern Territory	3 6	9 4	12 9	39 0	12 0	0	
Oodnadatta	3 6	10 2	12 4	39 0	12 0	0	

GOODS ROLLING STOCK.

Railway.	Gauge of Track.	Maximum Rolling Stock Gauge.			Maximum—		
		Width.	Height above Rail Level.	Length over all.	Tare.	Carrying Capacity.	
		ft. in.	ft. in.	ft. in.	t. c. q.	t. c. q.	
New South Wales	4 8½	9 8	13 6	60 11	20 10 3	40 0 0	
Victoria	5 3	9 7½	13 7½	55 4½	20 13 1	30 0 0	
"	2 6	6 5½	9 7½	27 3½	7 12 2½	10 0 0	
Queensland	3 6	8 9	12 0	45 5	14 16 0	21 8 0	
"	2 0	6 6	9 0	22 0	4 10 0	16 0 0	
South Australia	5 3	10 0½	12 10½	52 1	23 10 0	30 0 0	
"	3 6	8 6	12 5½	52 9	22 0 0	25 0 0	
Western Australia	3 6	8 8	12 6	44 9	17 18 0	27 0 0	
Tasmania	3 6	8 6	11 0	40 10	12 5 0	30 0 0	
"	2 0	6 0	6 6	27 0	5 15 2	20 0 0	
Federal—							
Trans-Australian	4 8½	10 6	14 6	47 6½	15 0 0	40 0 0	
Northern Territory	3 6	9 4	12 9	34 6	9 10 0	12 0 0	
Oodnadatta	3 6	10 2	12 4	18 0	5 0 0	12 0 0	

In the above tables the transverse dimensions given are not necessarily those of one particular vehicle, but are the greatest employed on any vehicle.

It will be observed that the dimensions adopted by the Federal Government for the Trans-Australian Railway are in excess of those at present in use on the 5-ft. 3-in. gauge lines of Victoria and South Australia, and the 4-ft. 8½-in. gauge lines of New South Wales. It is, however, the intention of the latter State to adopt the Federal standard as soon as possible, and with that end in view a commencement has been made in the Sydney suburban area in the enlargement of bridges, tunnels, buildings and platforms to enable the larger rolling stock to be employed. The question of standard couplings on the New South Wales lines is also receiving attention.

9. *Mileage Open for Traffic.*—In all the States of the Commonwealth the principle that the control, construction, and maintenance of the railways should be in the hands of the Government has long been adhered to, excepting in cases presenting unusual circumstances. In various parts of the Commonwealth, lines have been constructed and managed by private companies, but at the present time nearly the whole of the railway traffic in the Commonwealth is in the hands of the various State Governments or of the Commonwealth Government. A large proportion of the private lines which are at present running have been laid down for the purpose of opening up forest lands, mining districts, or sugar areas, and are not generally used for the conveyance of passengers or the public conveyance of goods. (See (F) *Private Railways*, hereinafter.)

Mileage of Government and Private Lines, 1855 to 1921. The subjoined table shews the mileage of Commonwealth Government, State Government, and private lines open for traffic (exclusive of sidings and cross-overs) in each State at different periods since the inauguration of railways in Australia in 1854 up to the year 1921. The railway mileage given for each State includes both Commonwealth and State Government railways in that State, and in this table and in those on the following page, is estimated from the geographic point of view and not from that of ownership. The figures from 1855 to 1881 are given to the end of the calendar year; the later figures are to the end of the financial year ended on the 30th June, unless otherwise stated, excepting the mileages for private lines, which are in most cases taken for the calendar year:—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OPEN, 1855 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Federal Territory	Nor. Ter.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1855 ..	14	2½	..	6½ ^a	..	..	..	..	23½
1861 ..	73	114	..	56	..	..	..	..	243
1871 ..	358	276	218	133	12	45	..	..	1,042
1881 ..	1,040	1,247	800	845	92	168	..	..	4,192
1890-1	2,263	2,763	2,205	1,666	656 ^b	425 ^b	..	145	10,123
1900-1	2,926	3,238	2,904	1,736	1,984	618 ^c	..	145	13,551
1910-11	4,027	3,574	4,390	1,993	3,208	675	..	145	18,012
1914-15	4,439	3,936½	5,449½	2,955	4,553	779½	5	146	22,263½
1915-16	4,491½	4,152½	6,452½	3,060½	4,707½	758½	5	146	23,773½
1916-17	4,781½	4,176½	6,702½	3,241½	4,878½	783½	5	199½	24,769
1917-18	5,025	4,222½	6,769½	3,356½	4,904½	781½	5	199½	25,264½
1918-19	5,170	4,260½	6,841½	3,404	4,965½	811	5	199½	25,657
1919-20	5,377	4,284½	6,946½	3,458½	4,846	840½	5	198½	25,956½
1920-21	5,402	4,337½	7,012½	3,463½	4,906	877	5	198½	26,202

(a) The line between Goolwa and Port Elliot was opened in 1854 as a horse tramway, but now forms part of the railway system. (b) To the 31st December, 1891. (c) To the 31st December, 1901.

It will be seen from the above table that the rate of construction up to the year 1871 was very slow, the average annual length of lines opened from 1861 to 1871 being only 80 miles for the whole Commonwealth. By the middle of the following decade, however, the principal mountain ranges had been crossed, and the work of construction could be proceeded with at a greater rate, and at a less cost per mile. A great period of activity was from 1881 to 1891, when the average annual length opened for traffic was 593 miles for the whole Commonwealth; the corresponding figures for the periods from June, 1891, to June, 1901, and from June, 1901, to June, 1911, were 343 and 446 miles respectively. Since June, 1911, the average annual length opened for traffic has been 819 miles.

The mileage of Government-owned lines in Western Australia has remained the same during the past two years. There has been no increase in the mileage of Government-owned lines in South Australia during the year.

10. Comparative Mileage of Government and Private Lines, 1921.—The subjoined table shews for each State (a) the length of lines owned by the State Government, and by the Commonwealth Government in that State, all of which lines are open for general use by the public, (b) the length of private lines available for general use by the public, and (c) the length not so available. The mileages specified in the case of Government lines are to the 30th June, 1921; those given for private lines are to the same date with the exception of Western Australia, which are to 31st December, 1920 :—

GOVERNMENT AND PRIVATE RAILWAYS.—MILEAGE OF GOVERNMENT LINES, OF PRIVATE LINES AVAILABLE FOR GENERAL TRAFFIC, AND OF PRIVATE LINES NOT SO AVAILABLE, 1920-21.

State or Territory	Government Lines—		Private Lines available for General Traffic.	Total Open for General Traffic.	Private Lines used for special Purposes only.	Grand Total.
	State.	Federal.				
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales	5,042.78	..	186.77	5,229.55	172.53	5,402.08
Victoria ..	4,266.58	..	24.94	4,291.52	45.83	4,337.35
Queensland ..	5,751.71	..	270.68	6,022.39	990.23	7,012.62
South Australia	2,333.19	1,075.41	33.80	3,442.40	20.95	3,463.35
Western Australia	3,538.23	453.99	278.10	4,270.32	635.51	4,905.83
Tasmania ..	629.84	..	199.86	829.70	47.31	877.01
Federal Territory	..	4.94	..	4.94	..	4.94
Northern Territory	..	198.68	..	198.68	..	198.68
Total ..	21,562.33	1,733.02	994.15	24,289.50	1,912.36	26,201.86

11. Comparative Railway Facilities in Different States and Territories, 1921.—The relations to populations and areas respectively of the mileage of line open to the public for general traffic (including both Government and private lines) on the 30th June, 1921, are shewn in the subjoined statement for each State, the Federal and Northern Territories, and also for the Commonwealth :—

GOVERNMENT AND PRIVATE RAILWAYS.—COMPARISON OF RAILWAY FACILITIES IN DIFFERENT STATES AND TERRITORIES, 1921.

State or Territory.	Population, 30th June, 1921.	Area.	Mileage of Railway.	
			Per 1,000 of Population.	Per 1,000 sq. miles of Territory.
	Number.	Sq. miles.	Miles.	Miles.
New South Wales ..	2,101,384	309,432	2.57	17.48
Victoria ..	1,535,938	87,884	2.82	49.35
Queensland ..	768,964	670,500	9.12	9.56
South Australia ..	497,525	380,070	6.96	9.11
Western Australia ..	333,117	975,920	14.72	5.02
Tasmania ..	211,984	26,215	4.13	33.45
Federal Territory ..	2,583	940	1.91	5.26
Northern Territory ..	3,928	523,620	50.58	0.38
Commonwealth ..	5,455,423	2,974,581	4.80	8.80

12. Classification of Lines according to Gauge, 1920-21.—The subjoined table gives a classification, according to gauge, of the total mileage, exclusive of sidings and cross-overs, of (i) Commonwealth Government railways, given in the State or Territory in which situated; (ii) State Government railways; (iii) Private railways open to the

public for general traffic; and (iv) Private lines open for special purposes. Particulars of Government railways are up to the 30th June, 1921, of private railways open for general traffic to the 31st December, 1920, and of private railways open for special purposes to the 31st December, 1920, as nearly as possible.

GOVERNMENT AND PRIVATE RAILWAYS.—CLASSIFICATION ACCORDING TO GAUGE, 1920-21.

State or Territory in which situated	Route mileage having a gauge of—								Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	3 ft. 0 in.	2 ft. 6 in.	2 ft. 3 in.	2 ft. 0 in.	1 ft. 8 in.	

FEDERAL RAILWAYS.

	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
South Australia	597.46	477.95	..	..	..	..	..	1,075.41
Western Australia	453.99	..	..	..	..	..	..	453.99
Federal Territory	4.94	..	..	..	..	..	..	4.94
Northern Territory	198.68	..	..	..	..	..	198.68
Total	1,056.39	676.63	..	..	..	..	..	1,733.02

STATE RAILWAYS.

	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ..	..	5,003.27	39.51	..	..	..	..	..	5,042.78
Victoria ..	4,144.68	..	..	..	121.90	..	..	..	4,266.58
Queensland ..	..	..	5,721.45	..	..	..	30.26	..	5,751.71
South Australia ..	1,123.60	..	1,209.59	..	..	..	..	..	2,333.19
Western Australia ..	..	..	3,538.23	..	..	..	..	..	3,538.23
Tasmania ..	..	..	606.26	..	..	..	23.58	..	629.84
Total ..	5,268.28	5,003.27	11,115.04	..	121.90	..	53.84	..	21,562.33

PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC.

	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ..	45.00	78.85	36.67	..	..	..	26.25	..	186.77
Victoria ..	13.94	..	..	11.00	..	..	..	..	24.94
Queensland ..	..	..	113.09	..	7.00	..	150.59	..	270.68
South Australia ..	..	..	33.80	..	..	..	..	..	33.80
Western Australia ..	..	..	278.10	..	..	..	..	..	278.10
Tasmania ..	..	..	183.87	..	..	..	15.99	..	199.86
Total ..	58.94	78.85	645.53	11.00	7.00	..	192.83	..	994.15

PRIVATE RAILWAYS OPEN FOR SPECIAL PURPOSES.

	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ..	..	158.77	3.50	..	..	..	10.26	..	172.53
Victoria ..	28.83	..	..	4.40	..	..	12.60	..	45.83
Queensland ..	..	..	221.06	..	19.44	..	749.73	..	990.23
South Australia ..	..	..	..	..	2.00	3.60	15.35	..	20.95
Western Australia ..	..	..	567.51	..	..	..	40.00	28.00	635.51
Tasmania ..	..	..	25.50	..	..	..	21.81	..	47.31
Total ..	28.83	158.77	817.57	4.40	21.44	3.60	849.75	28.00	1,912.36

ALL RAILWAYS.

	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
New South Wales ..	45.00	5,240.89	79.68	..	..	..	36.51	..	5,402.08
Victoria ..	4,187.45	..	..	15.40	121.90	..	12.60	..	4,337.35
Queensland ..	..	..	6,055.60	..	26.44	..	930.58	..	7,012.62
South Australia ..	1,123.60	597.46	1,721.34	..	2.00	3.60	15.35	..	3,463.35
Western Australia ..	..	453.99	4,383.84	..	..	..	40.00	28.00	4,905.83
Tasmania ..	..	..	815.63	..	..	..	61.38	..	877.01
Federal Territory ..	..	4.94	..	..	..	..	..	..	4.94
Northern Territory ..	..	..	198.68	..	..	..	..	..	198.68
GRAND TOTAL ..	5,356.05	6,297.28	13,254.77	15.40	150.34	3.60	1,096.42	28.00	26,201.86

(B) Federal Railways.

1. General.—On the 1st January, 1911, the Commonwealth Government took over the Northern Territory from the South Australian Government, and at the same time the railways from Darwin to Pine Creek in the Northern Territory, and from Port Augusta to Oodnadatta in South Australia, came under its control. Subsequently the construction of a transcontinental line from Port Augusta in South Australia, to Kalgoorlie in Western Australia, was undertaken by the Commonwealth Government, while a line has been constructed in the Federal Territory, connecting Canberra with the New South Wales railway system at Queanbeyan. In 1917 an Act was passed by which all the Federal railways are vested in a Commonwealth Railways Commissioner.

2. Trans-Australian Railway (Kalgoorlie to Port Augusta).—In the issue of the Year Book for 1918 (No. 11, pp. 663 to 666 and p. 1213), a short history of the construction of the Trans-Australian line is given, also a description of the country through which the line passes between Kalgoorlie and Port Augusta.

On the 22nd October, 1917, the first through train left Port Augusta with an official party on board for Kalgoorlie. It should be mentioned that owing to deviations from the original route, the length of this line was reduced from 1,063.39 miles to 1,051.45 miles, a saving of 11.94 miles.

3. Oodnadatta Railway.—This line was taken over by the Commonwealth Government from 1st January, 1911, but was held under lease by the South Australian Government until 31st December, 1913. From the 1st January, 1914, the line has been worked by the South Australian Government for and on behalf of the Commonwealth. It is provided in the Northern Territory Acceptance Act that the Commonwealth shall annually reimburse the State with the interest payable on the amount of loans raised by the State for the purpose of constructing the railway, and the agreement for working the line prescribes that the Commonwealth is responsible to the State for any financial loss incurred by the State in the working and management of the railway, but is entitled to receive from the State any profit made in such working and management.

4. Federal Territory Railway—Queanbeyan-Canberra.—This line was built by the Railway Construction Branch of the Public Works Department, New South Wales, and was completed and taken over by the Chief Commissioner of Railways for that State, who has since worked the line for and on behalf of the Commonwealth Government. The line was opened for departmental goods traffic on 25th May, 1914. It connects with the New South Wales railway system at Queanbeyan, is 4.94 miles in length, and has sidings of an aggregate length of 2.00 miles.

5. Northern Territory Railway (Darwin to Katherine).—On the 1st January, 1911, the line from Darwin to Pine Creek came under the jurisdiction of the then Department of External Affairs, and was worked under the Administrator of the Northern Territory. As mentioned above, the management of this railway is now vested in the Commonwealth Railways Commissioner.

In the Northern Territory Acceptance Act, the construction of a transcontinental line from South Australia is provided for. The extension of the line from Pine Creek to Katherine River has been completed, and the first train ran through to Emungalan (Katherine River) on 13th May, 1917.

6. **Summary of Federal Railways.**—The following table shews the railway lines open for traffic under the control of the Commonwealth Government at 30th June, 1921, together with the lines which have been or are being surveyed :—

FEDERAL GOVERNMENT RAILWAYS, 30th JUNE, 1921.

Terminals.				Miles.
OPEN FOR TRAFFIC.				
Trans-Australian—Port Augusta to Kalgoorlie	..	..	..	1,051.45
Port Augusta to Oodnadatta (South Australia)	..	..	..	477.95
Canberra to Queanbeyan (Federal Territory)	..	..	..	4.94
Darwin to Emungalan, Katherine River (Northern Territory)	..	..	..	198.68
Total opened for traffic	..	..	..	1,733.02
SURVEYED, OR BEING SURVEYED.				
Katherine River to Mataranka (Northern Territory)	..	..	..	65.44
Mataranka to Daly Waters (Northern Territory)	..	..	..	95.00
Kingoonya to Boorthanna (South Australia)	..	..	..	176.44
Canberra to Jervis Bay (Federal Territory)	..	..	..	140.22
Canberra (Federal Territory) to Federal Territory Border in the direction of Yass (New South Wales)	..	..	..	11.67
Daly Waters (Northern Territory) to Oodnadatta (South Australia)	..	..	..	851.50
Port Augusta to Crystal Brook (South Australia)	..	..	..	69.25
Total surveyed or being surveyed	..	..	..	1,409.52

7. **Mileage open for traffic, Average miles worked and Train miles run.**—The following table shews the length of the Federal railways open for traffic, average miles worked, and the train miles run in the years 1917 to 1921 :—

FEDERAL RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, AVERAGE MILES WORKED AND TRAIN MILES RUN, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans-Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	

MILES OPEN FOR TRAFFIC.

	Miles.	Miles.	Miles.	Miles.	Miles.
1917	958	478	5	200	1,641
1918	1,051	478	5	200	1,734
1919	1,051	478	5	200	1,734
1920	1,051	478	5	199	1,733
1921	1,051	478	5	199	1,733

FEDERAL RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, AVERAGE MILES WORKED AND TRAIN MILES RUN, 1917 TO 1921—continued.

Year ended 30th June.	Railway.				Total
	Trans- Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
AVERAGE MILES WORKED.					
	Miles.	Miles.	Miles.	Miles.	Miles.
1917	865	478	5	187	1,535
1918	1,051	478	5	200	1,734
1919	1,051	478	5	200	1,734
1920	1,051	478	5	199	1,733
1921	1,051	478	5	199	1,733
TRAIN MILES RUN.					
1917	570,493	254,927	1,169	87,652	914,241
1918	475,936	259,838	1,127	112,648	849,549
1919	368,886	221,763	1,015	83,209	674,873
1920	401,709	262,917	1,000	60,348	725,974
1921	472,290	320,292	1,058	17,270	810,910

8. **Cost of Construction and Equipment of Federal Railways.**—In the following table particulars are given of the cost of construction and equipment for traffic of the under-mentioned railways for each of the years 1916–17 to 1920–21 :—

FEDERAL RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT, 1917 TO 1921.

Railway.					
Year ended 30th June.	Trans- Australian.	Oodnadatta. (a)	Federal Territory. (b)	Northern Territory.	Total.
TOTAL COST OF CONSTRUCTION AND EQUIPMENT OF LINES OPEN					
	£	£	£	£	£
1917	6,079,313	2,281,271	52,591	1,664,370	10,077,545
1918	6,674,278	2,281,939	47,883	1,695,556	10,699,656
1919	6,911,624	2,282,973	48,124	1,707,392	10,950,113
1920	7,053,900	2,282,934	48,144	1,709,932	11,094,910
1921	7,137,365	2,287,193	48,144	1,711,585	11,184,287
COST PER MILE OPEN.					
1917	6,353	4,773	10,651	8,340	6,141
1918	6,349	4,774	9,693	8,496	6,171
1919	6,574	4,776	9,742	8,556	6,316
1920	6,710	4,776	9,746	8,607	6,402
1921	6,788	4,785	9,746	8,615	6,454

(a) Exclusive of Rolling Stock the property of South Australian Government Railways.

(b) Exclusive of Rolling Stock the property of New South Wales Government Railways.

9. **Gross Revenue.**—(i) *Total, per average mile worked, and per train mile run.* The following table shews the total revenue from all sources, the revenue per average mile worked and the revenue per train mile run for each of the undermentioned railways for the financial years from 1917 to 1921 inclusive :—

**FEDERAL RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED
AND PER TRAIN MILE RUN, 1917 TO 1921.**

Year ended 30th June.	Railway.				Total.
	Trans- Australian.	Oodnadatta.	Federal Territory.	Northern Territory	
TOTAL GROSS REVENUE.					
	£	£	£	£	£
1917	290,750	66,429	592	28,695	386,466
1918	175,039	69,231	705	32,511	277,486
1919	175,134	58,286	407	32,237	266,064
1920	213,388	74,709	571	27,089	315,757
1921	206,870	112,091	1,240	12,214	332,415
GROSS REVENUE PER AVERAGE MILE WORKED.					
1917	336	139	120	153	252
1918	166	145	141	163	160
1919	167	122	82	162	153
1920	203	156	116	136	182
1921	197	235	251	62	192
GROSS REVENUE PER TRAIN-MILE RUN.					
	d.	d.	d.	d.	d.
1917	122.32	62.54	121.54	78.57	101.45
1918	88.27	63.95	150.13	69.27	78.39
1919	113.94	63.08	96.24	92.98	94.62
1920	127.49	68.25	137.04	107.73	104.39
1921	105.12	83.99	281.29	169.74	98.38

(ii) *Coaching, Goods, and Miscellaneous Receipts, and Percentages on total Revenue.*
The gross revenue is composed of (a) receipts from coaching traffic, including the carriage of mails, horses, parcels, etc., by passenger trains; (b) receipts from the carriage of goods and live stock and (c) rents and miscellaneous items. The subjoined table shows the gross revenue for 1917 to 1921 classified according to the three chief sources of receipts, together with their percentages on the total revenue. The respective totals of the three items have already been given in the preceding paragraph.

**FEDERAL RAILWAYS.—COACHING, GOODS, AND MISCELLANEOUS RECEIPTS,
AND PERCENTAGES ON TOTAL REVENUE, 1917 TO 1921.**

Year ended 30th June.	Receipts.					Percentages.					Total.
	Railway.				Total.	Railway.					
	Trans- Aus- tralian.	Oodna- datta.	Federal Territory	Northern Territory		Trans- Aus- tralian.	Oodna- datta.	Federal Territory.	Northern Territory		
COACHING TRAFFIC RECEIPTS.											
1917	£ 4,411	£ 15,447	£ 39	£ 5,412	£ 25,309	% 1.52	% 23.25	% 6.59	% 18.86	% 6.55	
1918	72,352	14,586	31	5,341	92,310	41.33	21.07	4.40	16.43	33.27	
1919	93,867	12,455	34	5,250	111,606	53.60	21.37	8.25	16.28	41.95	
1920	95,671	10,600	15	4,433	110,719	44.83	14.19	2.63	16.36	35.07	
1921	128,953	18,589	20	2,700	150,262	62.34	16.58	1.61	22.11	45.20	
GOODS AND LIVE STOCK RECEIPTS.											
1917	271,013	48,026	553	17,152	336,744	93.21	72.30	93.41	59.77	87.13	
1918	77,339	51,213	674	19,539	148,765	41.19	73.97	95.60	60.10	53.61	
1919	50,485	43,194	373	19,676	113,728	28.83	74.11	91.75	61.04	42.74	
1920	82,490	61,401	453	14,930	159,274	38.67	82.19	79.33	55.12	50.44	
1921	39,750	90,802	1,210	4,859	136,621	19.21	81.01	97.58	39.78	41.10	
MISCELLANEOUS RECEIPTS.											
1917	15,326	2,956	..	6,131	24,413	5.27	4.46	..	21.37	6.82	
1918	25,348	3,432	..	7,631	36,411	14.48	4.96	..	23.47	13.12	
1919	30,783	2,636	..	7,311	40,730	17.57	4.52	..	22.68	15.81	
1920	35,227	2,708	103	7,726	45,764	16.50	3.62	18.04	28.52	14.40	
1921	38,167	2,700	10	4,655	45,532	18.45	2.41	0.81	38.11	13.70	

10. Working Expenses.—(i) *Total.* The following table shews the total working expenses, and the percentages of the total of those expenses upon the corresponding gross revenues of each railway for each year from 1917 to 1921.

Details of the annual expenditure on (a) maintenance of ways, works and buildings : (b) locomotives, carriages and wagons repairs and renewals, (c) traffic expenses, and (d) compensation, general and miscellaneous charges, are given on the next page.

FEDERAL RAILWAYS.—TOTAL WORKING EXPENSES, AND PERCENTAGES OF WORKING EXPENSES ON GROSS REVENUE, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans- Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
TOTAL WORKING EXPENSES.					
	£	£	£	£	£
1917	290,750	102,298	1,446	39,771	434,265
1918	232,468	100,179	1,496	53,482	387,625
1919	243,988	111,362	1,288	50,617	407,255
1920	256,028	112,191	802	48,616	417,637
1921	298,209	172,552	655	27,551	498,967
PERCENTAGE OF WORKING EXPENSES ON REVENUE.					
	%	%	%	%	%
1917	100.00	153.99	244.26	138.60	112.37
1918	132.81	144.70	212.20	164.50	139.69
1919	139.31	191.06	316.45	157.02	153.07
1920	119.98	150.17	140.46	179.47	132.26
1921	144.15	153.94	52.82	225.57	150.10

(ii) *Working expenses per average mile worked and per train-mile run.* The following table shews the working expenses per average mile worked and per train-mile run for each railway for the years 1917 to 1921 :—

FEDERAL RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED, AND PER TRAIN MILE RUN, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans- Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
WORKING EXPENSES PER AVERAGE MILE WORKED.					
	£	£	£	£	£
1917	336	214	293	212	283
1918	221	198	299	267	220
1919	232	233	261	254	235
1920	243	235	162	245	241
1921	284	361	133	139	288
WORKING EXPENSES PER TRAIN-MILE RUN.					
	d.	d.	d.	d.	d.
1917	122.32	96.31	296.87	108.90	114.00
1918	117.23	87.25	318.58	113.95	107.89
1919	158.74	120.52	304.55	145.99	145.00
1920	152.96	102.41	192.40	193.34	138.07
1921	151.54	129.30	148.59	382.87	147.67

(iii) *Distribution of Working Expenses.* The subjoined table shews the distribution of working expenses among four chief heads of expenditure for the years 1917 to 1921 :—

FEDERAL RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans- Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
MAINTENANCE.					
	£	£	£	£	£
1917	69,232	46,921	768	18,858	135,779
1918	64,990	39,673	609	23,699	128,971
1919	71,309	45,284	601	21,500	138,694
1920	72,197	43,967	553	20,664	137,381
1921	99,558	57,921	254	13,237	170,970
LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.					
1917	179,817	44,487	361	15,983	240,648
1918	121,574	42,582	544	22,309	187,009
1919	118,163	52,377	351	20,796	191,687
1920	119,753	53,437	196	19,841	193,227
1921	128,681	94,381	340	9,268	232,670
TRAFFIC EXPENSES.					
1917	37,808	9,295	317	4,930	52,350
1918	41,022	10,400	343	5,704	57,469
1919	47,572	11,471	336	7,104	66,483
1920	54,606	12,803	52	6,881	74,342
1921	59,382	17,655	61	4,129	81,227
OTHER CHARGES.					
1917	3,893	1,595	..	..	5,488
1918	4,882	1,804	..	1,769	8,455
1919	6,944	2,230	..	1,217	10,391
1920	9,471	1,985	..	1,231	12,687
1921	10,588	2,595	..	917	14,100

11. *Passenger Journeys, and Tonnage of Goods and Live Stock.*—In the next table particulars are given of the passenger journeys, and tonnage of goods and live stock carried on the Federal railways during the years 1917 to 1921 :—

FEDERAL RAILWAYS.—PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1917 TO 1921.

Year ended 30th June.	Railway.				Total.
	Trans- Australian.	Oodnadatta.	Federal Territory.	Northern Territory.	
PASSENGER JOURNEYS.					
	No.	No.	No.	No.	No.
1917	4,160	(a)	1,578	8,034	(b) 13,772
1918	17,934	(a)	300	11,546	(b) 29,780
1919	23,942	51,516	93	5,842	81,393
1920	22,968	55,742	..	4,818	83,528
1921	29,686	69,407	..	3,704	102,797
TONNAGE OF GOODS AND LIVE STOCK CARRIED.					
	tons.	tons.	tons.	tons.	tons.
1917	583,250	(a)	6,586	27,529	(b) 617,365
1918	124,806	(a)	7,261	40,862	(b) 172,929
1919	116,971	57,565	4,385	35,124	214,045
1920	53,722	94,892	4,691	23,122	176,427
1921	20,089	87,879	6,913	3,610	118,491

(a) Not available.

(b) Exclusive of Oodnadatta line.

12. Number and Description of Rolling Stock, 1921. —The following table shews the numbers of locomotives and rolling stock in use on the Federal railways, classified according to gauge :—

FEDERAL RAILWAYS.—CLASSIFICATION OF LOCOMOTIVES AND ROLLING STOCK, 1920-21.

Railway.	Gauge.		Total.	Gauge.		Total.	Gauge.		Total.
	4 ft. 8½ in.	3 ft. 6 in.		4 ft. 8½ in.	3 ft. 6 in.		4 ft. 8½ in.	3 ft. 6 in.	
	LOCOMOTIVES.			PASSENGER VEHICLES.			VEHICLES OTHER THAN PASSENGER.		
Trans-Australian	68	..	68	36	..	36	746	..	746
Oodnadatta (a)	..	1	1	..	..	..	..	31	31
Federal Territory (b)	..	..	..	..	..	..	..	..	..
Northern Territory	..	13	13	..	5	5	..	306	306
Total ..	68	14	82	36	5	41	746	337	1,083

(a) Worked by South Australian Government Railways.

(b) Worked by New South Wales Government Railways.

13. Number of Railway Employees. —The following table shews the number of employees on the Federal railways at 30th June in each year 1917 to 1921 inclusive, classified according to salaried and wages staffs :—

FEDERAL RAILWAYS.—NUMBER OF EMPLOYEES ON RAILWAYS, 1917 TO 1921.

Railway.	30th June—									
	1917.		1918.		1919.		1920.		1921.	
	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.
Trans-Australian	No. 157	No. 2,981	No. 201	No. 913	No. 194	No. 846	No. 184	No. 798	No. 172	No. 961
Oodnadatta ..	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Federal Territory	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Northern Territory	16	161	12	164	20	150	12	79	7	60
Total ..	173	3,142	213	1,077	214	996	196	877	179	1,021

(a) Worked by South Australian Government Railways.

(b) Worked by New South Wales Government Railways.

14. Accidents.—Number of Killed and Injured.—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock in each year ended 30th June 1918 to 1921, on the Federal railways :—

FEDERAL RAILWAYS.—TOTAL NUMBER OF PERSONS KILLED AND INJURED ON FEDERAL RAILWAYS, 1918 TO 1921.

Number of Persons—

Railway.	Killed.				Injured.			
	1918.	1919.	1920.	1921.	1918.	1919.	1920.	1921.
Trans-Australian
Northern Territory	..	3	1	3	14	10	9	2
Oodnadatta	1	..	..	12	8	12	6
Federal Territory
Total	4	1	3	26	18	21	10

15. **Passenger Fares, Goods Rates, and Parcel Rates.**—(i) *Passenger Fares.* In the following table the fares for certain specified distances on the Trans-Australian, Oodnadatta, and Northern Territory railways are set out:—

FEDERAL RAILWAYS.—ORDINARY PASSENGER MILEAGE RATES, 1921.

Single FARE for a Journey of—	Trans-Australian Railway.			Oodnadatta Railway.			Northern Territory Railway.		
	First Class.	Second Class.		First Class.	Second Class.		First Class.	Second Class.	
	Fare.	Average per Passenger Mile.		Fare.	Average per Passenger Mile.		Fare.	Average per Passenger Mile.	
Miles.	s. d.	d.	s. d.	d.	s. d.	d.	s. d.	d.	s. d.
50	8 4	2.00	5 7	1.34	9 9	2.34	6 7	1.58	10 5
100	16 8	2.00	11 1	1.33	19 9	2.37	13 3	1.59	20 10
200	33 4	2.00	22 3	1.34	39 3	2.36	26 0	1.56	41 8
300	50 0	2.00	33 4	1.33	58 6	2.34	39 3	1.57	.. ..
400	64 7	1.94	43 1	1.29	78 0	2.34	52 0	1.56	.. ..
500	77 1	1.85	51 5	1.23	.. ..	.. ..	.. ..	.. ..	.. ..
600	89 7	1.79	59 9	1.20	.. ..	.. ..	.. ..	.. ..	.. ..
700	102 1	1.75	68 1	1.17	.. ..	.. ..	.. ..	.. ..	.. ..
800	110 5	1.66	73 8	1.11	.. ..	.. ..	.. ..	.. ..	.. ..
900	117 9	1.57	78 6	1.05	.. ..	.. ..	.. ..	.. ..	.. ..
1,000	122 11	1.48	81 11	0.98	.. ..	.. ..	.. ..	.. ..	.. ..
1,051	125 0	1.43	83 4	0.95	.. ..	.. ..	.. ..	.. ..	.. ..

In the case of the Trans-Australian railway, through passengers have to pay for sleeping berths and meals in addition to the ordinary fares. For the first class sleeping berths the charge is twelve shillings and sixpence for a night or part of a night, the corresponding charge for the second class being eight shillings. There is a fixed scale of charges made in respect of the meals served to other than through passengers between Port Augusta and Kalgoorlie. It will be observed that both the first and second class fares on the Trans-Australian railway have a constant rate for distances up to 300 miles and then have a tapering character beyond that distance; while those for the Oodnadatta and the Northern Territory railways are practically uniform for all distances.

(ii) *Goods Rates.* The rates for agricultural produce and ordinary goods on the Trans-Australian and Northern Territory railways are set out in the following tables:—

FEDERAL RAILWAYS.—RATES FOR AGRICULTURAL PRODUCE IN TRUCK LOADS, 1921.

For a haul of—	Northern Territory Railway.		Trans-Australian Railway.		For a haul of—	Trans-Australian Railway, contd.	
	Rate per Ton in Truck Loads.	Average per Ton Mile.	Rate per Ton in Truck Loads.	Average per Ton Mile.		Rate per Ton in Truck Loads.	Average per Ton Mile.
50 miles	..	s. d. 8 8	d. 2.08	s. d. 6 11	d. 1.66	600 miles	..
100 "	..	15 3	1.83	12 2	1.46	700 "	..
200 "	..	19 3	1.16	15 5	0.93	800 "	..
300 "	21 8	0.87	900 "	..
400 "	27 6	0.83	1,000 "	..
500 "	33 4	0.80	1,051 "	..
							s. d. d.
							38 4 0.77
							42 6 0.73
							46 8 0.70
							50 5 0.67
							53 9 0.65
							55 0 0.63

FEDERAL RAILWAYS.—ORDINARY GOODS MILEAGE RATES, 1921.

For a Haul of—	Northern Territory Railway.					Trans-Australian Railway.					Trans-Australian Railway. <i>conld.</i>								
	Class of Freight.					Class of Freight.					Class of Freight.								
	Highest.		Lowest.			Highest.		Lowest.			Highest.		Lowest.						
	Rate per Ton.	Average per Ton Mile.	Rate per Ton.	Average per Ton Mile.		Rate per Ton.	Average per Ton Mile.	Rate per Ton.	Average per Ton Mile.		Rate per Ton.	Average per Ton Mile.	Rate per Ton.	Average per Ton Mile.					
Miles.	<i>s.</i>	<i>d.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>d.</i>	Miles.	<i>s.</i>	<i>d.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>d.</i>
50	39	5	9.46	6	9	1.62	31	6	7.56	5	5	1.30	600	223	9	4.48	38	4	0.77
100	71	11	8.63	10	11	1.31	57	6	6.90	8	9	1.05	700	239	5	4.10	42	6	0.73
200	133	2	7.99	19	8	1.16	106	6	6.39	15	5	0.93	800	255	0	3.83	46	8	0.70
300	..	..	..	..	..	..	143	0	5.72	21	8	0.87	900	269	1	3.59	50	5	0.67
400	..	..	..	..	..	..	172	2	5.17	27	6	0.83	1,000	281	7	3.38	53	9	0.65
500	..	..	..	..	..	..	201	4	4.83	33	4	0.80	1,051	287	6	3.28	55	0	0.63

In the above tables it will be seen that the average rates per ton-mile are of a tapering character.

(iii) *Parcel Rates.* On the Trans-Australian railway, parcels weighing between 85 and 112 lbs. are taken by passenger train 500 miles for thirteen shillings and threepence.

(C) State Railways.

1. *Mileage Open, 1917 to 1921.*—The following table shows the length of State railways open for traffic on the 30th June in the years 1917 to 1921 :—

STATE RAILWAYS.—MILEAGE OPEN FOR TRAFFIC, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
1917	4,437	4,123	5,214	2,221	3,425	581	20,001
1918	4,678	4,152	5,295	2,242	3,491	588	20,446
1919	4,825	4,190	5,469	2,290	3,538	601	20,913
1920	5,015	4,214	5,685	2,333	3,538	629	21,414
1921	5,043	4,267	5,752	2,333	3,538	630	21,563

The following statement shows the actual mileage opened for traffic in the year 1920–21, and also the annual average increase in mileage opened since 1911 in each State :—

STATE RAILWAYS.—MILEAGE OPENED ANNUALLY.

Mileage.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Total all States.
Mileage opened during 1920–21	27.45	52.58	66.61	..	..	1.14	147.78
Average annual mileage increase in 10 years to 30th June, 1921 ..	121.11	64.42	162.84	87.17	94.02	13.28	543.03

(i) *New South Wales.* During the year ended 30th June, 1921, the extension from Humula to Tumbarumba (28.29 miles) was opened for traffic. A few small readjustments of actual mileage on existing lines were made, reducing the mileage opened by 0.84 miles.

(ii) *Victoria*. The following lines were opened for traffic during 1920-21:—Cavendish to Balmoral (25.03 miles); Alberton to Yarram (3.62 miles); Manangatang to Annuello (14.19 miles); and Beetoomba to Cudgewa (9.74 miles); a total of 52.58 miles.

(iii) *Queensland*. The increase of 66.61 miles in the mileage opened for traffic in 1920-21 was due to the opening of the following lines:—Goondah to Wallaville (12.20 miles); Kobbie to Dayboro (4.28 miles); Styx to Wumalgi (8.94 miles); Wumalgi to St. Lawrence (10.86 miles); Koumala to Carmila (25.34 miles); and Ingham to Lilypond (4.99 miles).

(iv) *South Australia*. During the year 1920-21 no additional new lines were opened.

(v) *Western Australia*. There were no additional new lines opened during the year 1920-21.

(vi) *Tasmania*. During the year 1920-21 the line from Ulverstone to Ulverstone Wharf (0.50 miles) was completed and taken over, and the branch to Cadbury Works, Claremont (0.64 miles), also came into use for general traffic, making a total increase of 1.14 miles.

2. Average Mileage Worked, Train Miles Run, Number of Passenger Journeys, and Tonnage of Goods and Live Stock Carried on State Government Railways.—The table on page 552 gives the total mileage open for traffic at the end of each financial year, but, in considering the returns relating to revenue and expenditure, and other matters, it is desirable to know the average number of miles actually worked during each year. The next table shews the average number of miles worked, the total number of train miles run, the number of passenger journeys, and the tonnage of goods and live stock carried by the Government railways of each State during the years 1917 to 1921 inclusive:—

STATE RAILWAYS.—AVERAGE MILEAGE WORKED, TRAIN MILES RUN, NUMBER OF PASSENGER JOURNEYS, AND TONNAGE OF GOODS AND LIVE STOCK CARRIED, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania. (a)	All States.
AVERAGE MILEAGE WORKED.							
1917	4,313	4,104	5,067	2,193	3,370	577	19,624
1918	4,551	4,130	5,281	2,235	3,463	591	20,260
1919	4,737	4,159	5,324	2,285	3,507	599	20,611
1920	4,966	4,194	5,635	2,316	3,538	635	21,284
1921	5,019	4,237	5,733	2,333	3,538	637	21,497

TRAIN MILES RUN.

1917	20,300,717	14,022,040	10,729,187	5,730,539	4,500,211	1,080,459	56,363,153
1918	18,143,287	13,626,371	10,319,694	5,440,515	4,094,510	1,056,373	52,680,730
1919	19,935,202	13,031,655	9,942,744	5,412,924	4,256,627	1,107,890	53,687,042
1920	22,834,889	15,022,465	10,443,619	5,192,038	4,851,446	1,266,625	59,611,082
1921	22,792,053	15,909,291	10,735,723	5,712,491	4,918,118	1,387,417	61,455,088

NUMBER OF PASSENGER JOURNEYS.

1917	96,709,846	108,341,540	24,837,714	18,107,015	17,466,744	1,971,888	267,434,747
1918	94,304,516	105,753,073	25,682,368	18,936,104	16,081,695	1,874,029	262,631,785
1919	98,568,788	111,904,786	26,414,817	20,176,544	17,325,424	1,889,102	276,279,441
1920	114,654,660	134,012,162	23,177,817	22,852,116	18,411,231	2,267,656	320,375,842
1921	120,735,140	134,045,683	27,735,179	23,787,884	17,732,571	2,687,837	326,724,294

TONNAGE OF GOODS AND LIVE STOCK CARRIED.

1917	11,732,864	5,962,602	4,035,379	2,822,401	2,400,246	401,076	27,354,568
1918	11,293,060	6,231,093	4,154,441	2,767,734	2,259,070	407,405	27,112,803
1919	12,714,012	6,515,470	3,783,334	2,618,510	2,379,403	472,926	28,483,655
1920	13,293,528	7,770,694	3,790,881	2,578,903	2,613,606	575,169	30,622,786
1921	15,563,131	7,572,993	3,867,650	2,682,218	2,604,068	672,127	32,962,187

(a) The average mileage worked in some cases is greater than the actual mileage open, owing to the fact that the Government railways have running powers over certain private lines.

3. **Length and Gauge of Railway Systems in each State.**—In all the States the Government railways are grouped, for the convenience of administration and management, into several divisions or systems. A summary shewing concisely the gauge and length of the main and branch lines included in each division or system of the different States of the Commonwealth for the year ended the 30th June, 1918, was given in Year Book No. 12, pp. 646 and 651 to 653. Owing to limitations of space this information for the year ended 30th June, 1921, is not included in the present volume, but may be found in Transport and Communication Bulletin No. 13 issued by this Bureau.

4. **Administration and Control of State Railways.**—In each State of the Commonwealth the policy has been established that the railways should be under the control of the Government. This policy, as has been shewn, was adopted early in the railway history of Australia, and, excepting in cases presenting unusual circumstances, may be regarded as the settled policy of the country. In earlier issues of the Year Book (see No. 6, p. 693) will be found a description of the methods adopted by the various State Governments in the control and management of their railways.

5. **Lines under Construction, and Lines Authorised, 1921.**—The following statement gives particulars up to the 30th June, 1921, of the mileage of State railways (a) under construction, and (b) authorised for construction but not commenced:—

**STATE RAILWAYS.—MILEAGE UNDER CONSTRUCTION AND AUTHORISED.
30th JUNE, 1921.**

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	All States.
Mileage under construction ..	a 635.84	52.38	b 130.00	138.63	c 83.00	37.65	1,077.50
Mileage authorised but not commenced ..	84.02	10.00	1,423.00	28.75	92.50	9.66	1,647.93

(a) Exclusive of 161.90 miles on which work has been suspended.

(b) Exclusive of 421 miles on which work has been suspended.

(c) Exclusive of 53.25 miles on which work has been suspended.

(i) *Lines under Construction.* In spite of the great extension of State railways which has taken place since the year 1875 throughout the Commonwealth, there are still, in some of the States, tracts of country of immense area which are as yet practically undeveloped, and in which little in the nature of permanent settlement has been accomplished. The general policy of the States is to extend the existing lines inland, in the form of light railways, as settlement increases, and although it is true that lines which were not likely to be commercially successful in the immediate future have been constructed from time to time for the purpose of encouraging settlement, the general principle that the railways should be self-supporting is kept in view.

(a) In *New South Wales* the lines under construction (635.84 miles) consist of 312 miles of "pioneer lines" built to afford railway communication over level country suitable for settlement by returned soldiers. In addition there are 200 miles of a more expensive character passing through mountainous districts. The line from Coff's Harbour to Glenreagh (26.38 miles) will form part of the North Coast Railway, which will eventually be connected with Brisbane. The line from Molong to Dubbo (80.00 miles) will assist in the development of the Western system. Other lines under construction are Nimmitabel to Bombala (37.85 miles); Binnaway to Werris Creek (90.88

miles); Coonabarabran to Burren Junction (95.37 miles); Griffith to Hillston (62.18 miles); Barmadman to Rankin's Springs (70.90 miles); Yanco to Griffith (33.00 miles); Gilmore to Batlow (22.00 miles); Canowindra to Eugowra (26.70 miles); Westmead to Dural (1.56 miles); Glenreagh to Dorrigo (44.25 miles); Regent's Park to Cabramatta and Enfield (8.10 miles); Macksville to Raleigh (20.67 miles); and Tarana to Oberon (16.00 miles).

The following lines have been partly constructed, but further work is at present suspended:—Trida to Menindie (155.70 miles); Sydenham to Botany (6.20 miles); a total distance of 161.90 miles.

(b) *Victoria.* In this State the following lines were under construction by the Board of Land and Works on the 30th June, 1921:—5-ft. 3-in. gauge: Koo-wee-rup to McDonald's Track (30.75 miles); Yarram to Won Wron (8.63 miles); Bittern to Red Hill (10.00 miles); and Morwell Brown Coal Railway (3.00 miles), making in all 52.38 miles.

(c) *Queensland.* In December, 1910, the North Coast Railway Act was passed. Under this Act a series of lines, when constructed, will link up a number of existing lines in such a way that a through line will be obtained from Rockhampton to Cairns, via Mackay and Townsville, a total distance of 630 miles. By the completion of this line it will be possible to travel from Cairns to the southern border of the State at Wallangarra, a total distance of about 1,250 miles. At the same time the Great Western Railway Act was passed. Under this Act provision is made for the extension in a westerly or south-westerly direction of the lines already constructed to Quilpie, Yaraka, Winton, and Dajarra, in such a manner that they will form junctions with a line to be made running north-westerly from Eromanga to Camooweal. These extensions, together with the north-westerly line, will make an aggregate distance of 990 miles to be constructed. With the completion of both these schemes, the railways of this State will be brought into direct communication with each other on both their east and west boundaries. On the 30th June, 1921, the following lines, of an aggregate length of 130 miles, were under construction:—Northern Division—Gargett to Owen's Creek (6 miles); Merinda to Bowen Coal Fields (48 miles); Tarzali to Millaa Millaa (8 miles). North Coast Railway—Carmila to St. Lawrence (32 miles); Daradgee to Tully River (36 miles). The following lines are partially constructed but work thereon is temporarily suspended:—Kalbar to Mount Edwards (10 miles); Tara to Surat (50 miles); Wallaville to Kallilva (18 miles); Murgon to Preston (26 miles); Longreach to Winton (109 miles); Yaraka to Powell's Creek (27 miles); Farleigh to Prosperine (68 miles); Lilypond to Cardwell (28 miles); Dajarra to Moonah Creek (41 miles); Mt. Molloy Extension (7 miles); and Winton to 37-Mile (37 miles); a total of 421 miles.

(d) *South Australia.* In this State the lines under construction on the 30th June, 1921, were as follow:—Clare to Spalding (23.63 miles), Wandana to Penong (54.00 miles), and Long Plains to Redhill (61.00 miles), an aggregate distance of 138.63 miles.

(e) In *Western Australia* the following lines were in course of construction by the Public Works Department on the 30th June, 1921:—Esperance northward (60 miles), Mt. Marshall Extension (23 miles), a total of 83 miles. The construction of the line from Narembreen to Merredin (53.25 miles) is at present in abeyance.

(f) *Tasmania.* At 30th June, 1921, the following lines were under construction:—Myalla to Stanley (27.00 miles); Irishtown to Smithton (5.84 miles); and Marrawah Tram Extension (4.81 miles); a total of 37.65 miles.

(ii) *Lines Authorised for Construction.* (a) *New South Wales.* At the 30th June, 1921, the following lines had been authorised for construction but not commenced:—Gulgandra to Collie (21.51 miles); Roslyn to Taralga (15.82 miles); Grafton to South Grafton with bridge over Clarence River (2.34 miles); The Rock to Pulletop (25.00 miles); Ballina to Buyong (12.50 miles); Richmond to Kurrajong (6.85 miles); a total distance of 84.02 miles.

(b) In *Victoria* the following line was authorised, but construction had not been commenced up to the end of June, 1921:—5-ft. 3-in. gauge: Merbein to Yelta (10 miles).

(c) *Queensland*. In addition to the new lines upon which work has been commenced, Parliament has also authorised the construction of the following parts of the Great Western Railway: Section A, from Quilpie to Eromanga (120 miles); Section B, from Powell's Creek (224 miles); Section C, from 37-Mile to Springvale (324 miles); and Section D, from Moonah Creek (217 miles); and on the North Coast Railway, Section E, from Tully River southwards to Cardwell (24 miles). The following lines were also authorised for construction: Branch to Windera (12 miles); Inglewood to Texas and Silverspur (44 miles); Mount Edwards to Maryvale (28 miles); Lanefield to Rosevale (17 miles); Gatton to Mount Sylvia (11 miles); Juandah to Taroom (42 miles); Dirranbandi extension (52 miles); Mundubbera to the Northern Burnett (32 miles); Yarraman to Nanango (16 miles); Brooloo to Kenilworth (10 miles); Many Peaks to northern end of approved line from Mundubbera to Northern Burnett (79 miles); Monte and Rannes to open up Callide Valley and Prairie Land (110 miles); Dobbyn to Myally Creek (50 miles); Pearamon towards Boonjee (11 miles); a total of 1,423 miles.

(d) In *South Australia*, Parliament has authorised the construction of lines on the 5-ft. 3-in. gauge (i) from Paringa to Renmark, a distance of 2.50 miles, and on the 3-ft. 6-in. gauge from Kielpa to Mangalo Hall (26.25 miles). The latter line, however, cannot be proceeded with except by resolution of both Houses of Parliament. The conversion of certain 3-ft. 6-in. gauge lines in the north-west of the State to 5-ft. 3-in. gauge has also been authorised. About 175 miles of line are involved in this scheme.

(e) In *Western Australia* the following lines were authorised for construction up to the 30th June, 1921:—Busselton-Margaret River (37.75 miles), Dwarda-Narrogin (33 miles), and Nyabing-Pingerup (21.75 miles), a distance of 92.50 miles.

(f) In *Tasmania* the following lines were authorised for construction, but work had not commenced at 30th June, 1921:—Preolenna Railway Extension (4.66 miles), and Melrose Extension (5.00 miles).

6. **Cost of Construction and Equipment of State Railways.**—The total cost of construction and equipment of the State railways of Australia at the 30th June, 1921, amounted to £226,295,406, or to an average cost of £10,495 per mile open for traffic. Particulars as to the capital expenditure incurred in each State on lines open for traffic are given in the following table:—

STATE RAILWAYS.—MILEAGE AND COST TO 30th JUNE, 1921.

State.	Length of Line Open (Route).	Total Cost of Construction and Equipment.	Average Cost per Mile Open.	Cost per Head of Population.	Mileage per 1,000 of Population.
	Miles.	£	£	£	Miles.
New South Wales (a) ..	5,042.78	82,304,194	16,321	39.17	2.40
Victoria	4,266.58	(b) 59,798,696	(b) 14,016	38.93	2.78
Queensland	5,751.71	41,368,640	7,192	53.80	7.48
South Australia (a) ..	2,333.19	(c) 19,270,704	(c) 8,259	38.73	4.69
Western Australia (a) ..	3,538.23	18,169,980	5,135	54.55	10.62
Tasmania	629.84	5,383,192	8,547	25.39	2.97
All States ..	21,562.33	226,295,406 (bc)	10,495	41.53	3.96

(a) Exclusive of Federal railways.

(b) Exclusive of cost of line from Murrayville to South Australian border (12.53 miles).

(c) Exclusive of cost of line from Mount Gambler to Victorian border (11.79 miles).

It will be seen that the lowest average cost per mile open, £5,135, is in Western Australia, which is slightly less than one-third of the highest average cost, namely, £16,321 in New South Wales, compared with an average of £10,495 for all the State Government railways. In Western Australia there have been comparatively few engineering difficulties to contend with; moreover, the system was adopted in several instances in that State of giving contractors the right to carry traffic during the period of their contracts, with the result that, at least in all goldfields railway contracts, the cost of construction was considerably lessened.

In the above table the figures relating to cost of construction and equipment do not include the discounts and flotation charges on loans allocated to the railways. This will explain the reason for the differences between the amounts shewn above for Queensland and South Australia and those shewn in the railway reports for these States.

(i) *Reduction of Cost per Mile in Recent Years.* The average cost per mile of the lines constructed lately in the Commonwealth is very much less than the figure given in the above table, in consequence of the construction of light "pioneer" lines, which have already been referred to, and which it was originally considered in New South Wales could be laid down at a cost of £1,750 per mile (exclusive of stations and bridges). It should also be remembered that in the early days of railway construction there were considerable engineering difficulties to overcome, and that labour was scarce and dear. Since 1892 many hundreds of miles of "pioneer" lines have been opened in New South Wales, the average cost ranging from about £2,000 to £7,500 per mile, according to the difficulties met in the country traversed. The lowest cost per mile for any line previously constructed had been that of the line from Nyngan to Cobar and the Peak, the average cost of which, to the end of June, 1921, was £3,792. In Victoria also the cost of construction has been greatly reduced in recent years. The total cost to the 30th June, 1921, of the narrow gauge (2 ft. 6 in.) lines, having a length of 121.90 miles, was only £346,112, which gives an average cost per mile of only £2,839. In the other States the cost of construction per mile has been similarly reduced by building light railways as cheaply as possible. Fairly substantial permanent way is laid down with reduced ballast, and, as settlement progresses and traffic increases, the road is strengthened, and the stations and siding accommodation enlarged. The subjoined table gives examples of some of the more expensive lines, most of which were built in the early days of railway construction in Australia.

STATE RAILWAYS.—EXAMPLES OF LINES CONSTRUCTED AT LARGE CAPITAL EXPENDITURE PER MILE OPEN.

Line.	Gauge.	Length.			Total Cost.	Average Cost per Mile.	Date of Opening.
		Double Lines and over.	Single Line.	Total.			
	ft. in.	Miles.	Miles.	Miles.	£	£	
NEW SOUTH WALES—							
Penrith to Bathurst ..	4 8½	91.51	22.58	114.09	4,545,496	39,843	1876
Sydney to Nowra ..	4 8½	44.25	54.10	98.35	4,830,105	49,110	1887
Homebush to Waratah ..	4 8½	95.71	..	95.71	3,605,345	37,668	1889
VICTORIA—							
Melbourne to Bendigo ..	5 3	100.89	..	100.89	4,991,683	49,476	1862
North Geelong to Ballarat ..	5 3	41.45	11.98	53.43	1,966,396	36,803	1862

The next table gives instances of lines which have been constructed in more recent years at a comparatively small cost per mile.

The average cost per mile of the 462.47 miles comprised in the above table was £43,114, whereas the average cost of the 351.15 miles referred to in the next table was £1,936.

STATE RAILWAYS.—EXAMPLES OF LINES CONSTRUCTED AT SMALL CAPITAL EXPENDITURE PER MILE OPEN.

Line.	Gauge.		Length.	Total Cost.	Average Cost per Mile.	Date of Opening.
	ft.	in.	Miles.	£	£	
NEW SOUTH WALES—						
Parkes to Condobolin ..	4	8½	62.66	138,824	2,215	1898
Burren Junction to Pokataroo ..	4	8½	42.55	105,112	2,470	1906
VICTORIA—						
Wangaratta to Whitfield ..	2	6	30.49	40,964	1,344	1899
Wycheproof to Sea Lake ..	5	3	47.89	87,210	1,821	1895
Ultima to Chillingollah ..	5	3	20.14	34,766	1,726	1909
QUEENSLAND—						
Dalby to Bell ..	3	6	23.50	38,415	1,635	1906
Mahar to Jandowae ..	3	6	28.24	61,122	2,164	1914
SOUTH AUSTRALIA—						
Wandilo to Glencoe ..	3	6	9.13	11,740	1,287	1904
Tailem Bend to Pinnaroo ..	5	3	86.55	161,841	1,870	1906

The comparisons afforded in the two preceding tables are subject to certain limitations, inasmuch as the cost is naturally greater in the case of the older lines. Further, the figures given represent the cost of construction only (*i.e.*, exclusive of cost of equipment), and cannot therefore be directly compared with the average cost per mile open given in the table on page 556.

(ii) *Capital Cost of Construction and Equipment, Total and per Mile Open.* The increase in the total capital cost of construction and equipment of Government railways in each State for each year from 1917 to 1921 is shewn in the following table:—

STATE RAILWAYS.—CAPITAL COST OF CONSTRUCTION AND EQUIPMENT, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
TOTAL COST OF LINES OPEN.							
1917 ..	£ 72,006,621	£ 55,652,275	£ 36,476,000	£ 17,687,344	£ 17,466,802	£ 4,913,395	£ 204,202,437
1918 ..	75,050,450	56,535,414	37,301,889	17,974,348	17,760,566	4,979,399	(a, b) 209,602,066
1919 ..	73,601,531	57,403,576	38,244,494	18,849,979	17,995,941	5,076,014	(a, b) 213,971,596
1920 ..	79,318,917	58,287,897	40,005,868	19,105,510	18,062,354	5,240,276	(a, b) 220,020,822
1921 ..	82,304,194	59,798,696	41,368,040	19,270,704	18,169,980	5,383,192	(a, b) 226,295,406

COST PER MILE OPEN.

1917 ..	£ 16,229	£ 13,498	£ 6,996	£ 7,964	£ 5,100	£ 8,447	£ 10,210
1918 ..	16,042	(a) 13,659	7,045	(b) 8,058	5,087	8,470	(a, b) 10,263
1919 ..	15,877	(a) 13,743	6,992	(b) 8,186	5,086	8,438	(a, b) 10,243
1920 ..	15,815	(a) 13,832	7,037	(b) 8,188	5,105	8,344	(a, b) 10,275
1921 ..	16,321	(a) 14,016	7,192	(b) 8,259	5,135	8,547	(a, b) 10,495

(a) Exclusive of cost of line from Murrayville to South Australian border (12.53 miles).

(b) Exclusive of cost of line from Mount Gambier to Victorian border (11.79 miles).

(iii) *Loan Expenditure on Railways.* The subjoined table shews the total loan expenditure on Government railways (including lines both open and unopen) in each State, except Tasmania, and on Government railways and tramways in the latter State for the years 1916-17 to 1920-21:—

STATE RAILWAYS.—LOAN EXPENDITURE, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas. (a)	All States.
	£	£	£	£	£	£	£
1917 ..	3,706,422	1,266,352	1,342,249	413,095	308,027	133,056	7,169,201
1918 ..	2,294,547	761,705	984,147	500,441	181,394	55,561	4,777,795
1919 ..	1,441,105	878,384	1,416,302	324,041	154,720	39,165	4,253,717
1920 ..	2,387,303	982,182	2,356,498	236,925	93,676	91,221	6,147,805
1921 ..	3,598,351	1,685,329	1,760,932	252,097	145,724	254,079	7,696,512

(a) Including tramways.

The following statement shews the total loan expenditure on railways to the 30th June, 1921 :—

STATE RAILWAYS.—TOTAL LOAN EXPENDITURE IN EACH STATE TO 30th JUNE, 1921.

State ..	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.a	All States.
	£	£	£	£	£	£	£
Expenditure	87,485,009	58,190,597	44,568,670	21,451,931	17,586,723	5,851,065	235,133,995

(a) Including tramways.

7. Gross Revenue ; Total, per Average Mile Worked, and per Train-mile Run.—The following table shews the total revenue from all sources, the revenue per average mile worked, and the revenue per train-mile run in each State during each financial year from 1917 to 1921 inclusive :—

STATE RAILWAYS.—GROSS REVENUE, TOTAL, PER AVERAGE MILE WORKED, AND PER TRAIN-MILE RUN, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
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TOTAL GROSS REVENUE.

	£	£	£	£	£	£	£
1917 ..	8,380,084	5,952,719	3,831,967	2,278,530	1,877,332	340,505	22,656,187
1918 ..	8,954,880	6,562,259	4,023,921	2,331,549	1,816,388	356,735	24,045,722
1919 ..	9,958,172	6,432,277	3,931,597	2,391,409	1,872,897	401,364	25,040,717
1920 ..	13,083,847	8,224,972	4,960,150	2,726,540	2,291,876	506,177	31,793,562
1921 ..	14,267,205	9,795,763	5,279,412	2,942,028	2,720,032	600,045	35,604,485

GROSS REVENUE PER AVERAGE MILE WORKED.

	£	£	£	£	£	£	£
1917 ..	1,943	1,450	756	1,037	557	591	1,155
1918 ..	1,968	1,585	762	1,043	525	604	1,166
1919 ..	2,102	1,547	748	1,047	534	670	1,215
1920 ..	2,635	1,961	880	1,177	648	797	1,494
1921 ..	2,843	2,312	921	1,261	768	942	1,656

GROSS REVENUE PER TRAIN-MILE RUN.

	d.	d.	d.	d.	d.	d.	d.
1917 ..	99.07	101.89	85.72	95.22	100.12	75.64	96.47
1918 ..	118.46	115.58	93.58	102.55	106.47	81.05	109.55
1919 ..	119.88	118.46	96.18	106.03	105.60	86.95	111.94
1920 ..	137.51	131.40	113.99	126.03	113.38	95.91	127.80
1921 ..	150.23	147.77	118.02	123.60	132.74	103.79	139.05

8. **Coaching, Goods, and Miscellaneous Receipts.**—The gross revenue is composed of (a) receipts from coaching traffic, including the carriage of mails, horses, parcels, etc., by passenger trains; (b) receipts from the carriage of goods and live stock; and (c) rents and miscellaneous items. The subjoined table shews the gross revenue for 1917 to 1921, classified according to the three chief sources of receipts. The total of the three items specified has already been given in the preceding paragraph.

**STATE RAILWAYS.—COACHING, GOODS, AND MISCELLANEOUS RECEIPTS,
1917 TO 1921.**

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
COACHING TRAFFIC RECEIPTS.							
	£	£	£	£	£	£	£
1917 ..	3,637,656	2,918,557	1,308,896	739,483	607,537	171,220	9,393,349
1918 ..	3,932,936	3,254,274	1,396,803	819,197	617,606	177,854	10,198,670
1919 ..	3,978,180	3,411,194	1,392,476	807,747	637,851	188,329	10,245,777
1920 ..	5,714,131	4,205,420	1,833,349	1,130,659	764,872	236,763	13,885,194
1921 ..	6,384,031	4,923,067	1,885,677	1,185,878	911,007	270,635	15,560,295
GOODS AND LIVE STOCK TRAFFIC RECEIPTS.							
	£	£	£	£	£	£	£
1917 ..	4,542,619	2,934,259	2,433,868	1,502,363	1,176,058	158,162	12,747,329
1918 ..	4,652,113	3,137,547	2,516,564	1,480,463	1,105,836	168,095	13,060,624
1919 ..	5,583,982	2,957,789	2,483,698	1,536,209	1,127,539	203,412	13,892,629
1920 ..	6,807,792	3,721,122	3,000,829	1,556,224	1,394,908	261,657	16,742,532
1921 ..	7,270,856	4,411,276	3,267,289	1,719,556	1,637,979	320,798	18,627,754
MISCELLANEOUS RECEIPTS.							
	£	£	£	£	£	£	£
1917 ..	(a) 199,809	99,903	89,203	31,684	93,787	11,123	525,509
1918 ..	(a) 369,831	170,438	110,554	31,883	92,946	10,786	786,438
1919 ..	(a) 396,011	233,294	108,423	47,453	107,507	9,623	902,311
1920 ..	(a) 561,924 (b) 298,430		125,972	39,657	132,096	7,757	1,165,836
1921 ..	(a) 612,318 (b) 461,420		126,446	36,594	171,046	8,612	1,416,436

(a) Including Refreshment Rooms, 1917, £102,375; 1918, £274,699; 1919, £289,810; 1920, £426,823; and 1921, £455,212. (b) Including Refreshment Rooms, 1920, £105,619; and 1921, £258,315.

(i) *New South Wales.* The total earnings for the year 1920-21 amounted to £14,267,205, an increase of £1,183,358 as compared with the previous year. Increases of £669,900, £463,064, and £50,394 took place in the coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(ii) *Victoria.* In Victoria, traffic receipts shewed increases as compared with the previous year of £717,647, £690,154, and £162,990, a total increase of £1,570,791 for the year in coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(iii) *Queensland.* In Queensland, there were increases in 1920-21 of £52,328, £266,460, and £474, representing an increase of £319,262 for the year for all services in respect of coaching traffic, goods and live stock traffic, and miscellaneous respectively.

(iv) *South Australia.* In this State there were increases of £55,219 and £163,332 in coaching traffic and goods and live stock receipts respectively, and a decrease of £3,063 in miscellaneous receipts, the net increase for the year 1920-21, being £215,488 in advance of the receipts for the previous year.

(v) *Western Australia.* In this State the earnings in 1920-21 shewed an increase of £428,156 as compared with 1919-20. There were increases of £146,135, £243,071, and £38,950 in the coaching traffic, goods and live stock traffic, and miscellaneous receipts respectively.

(vi) *Tasmania*. The gross revenue in 1920-21 shewed an increase of £93,868 as compared with the previous year, made up by coaching traffic, £33,872; goods and live stock traffic, £59,141; and miscellaneous receipts, £855.

The following table shews for the two years 1919-20 and 1920-21 the percentage which each class of receipts bears to the total gross revenue :—

STATE RAILWAYS.—PERCENTAGE OF REVENUES FROM VARIOUS SOURCES ON TOTAL REVENUE, 1920 and 1921.

Particulars.	1919-20.						
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching	43.67	51.13	36.96	41.46	33.38	46.78	43.67
Goods and live stock	52.03	45.24	60.50	57.08	60.86	51.68	52.66
Miscellaneous	4.30	3.63	2.54	1.46	5.76	1.54	3.67

Particulars.	1920-21.						
	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Coaching	44.75	50.26	35.72	40.31	33.49	45.10	43.70
Goods and live stock	50.96	45.03	61.89	58.45	60.22	53.46	52.32
Miscellaneous	4.29	4.71	2.39	1.24	6.29	1.44	3.98

9. **Coaching Traffic Receipts per Average Mile Worked, and per Passenger-train Mile.**—The subjoined table shews the receipts from coaching traffic per average mile of line worked, and per passenger-train mile, in each State and for all States for the year ended the 30th June, 1921 :—

STATE RAILWAYS.—COACHING TRAFFIC RECEIPTS PER MILE WORKED, AND PER PASSENGER-TRAIN MILE, 1920-21.

State.	Number of Passenger-Train Miles.(a)	Coaching Traffic Receipts.		
		Gross.	Per Average Mile Worked.	Per Passenger-Train Mile.
	No.	£	£	d.
New South Wales	11,301,271	6,384,031	1,272	135.58
Victoria	8,400,876	4,923,067	1,162	140.64
Queensland	3,767,645	1,885,677	329	120.12
South Australia	2,815,117	1,185,878	508	101.10
Western Australia	2,053,479	911,007	257	106.47
Tasmania	494,451	270,635	425	131.36
Total	28,832,839	15,560,295	724	129.52

(a) The returns include the undermentioned mixed-train mileage, which has been divided between passenger-train miles and goods-train miles in the proportion of one-third and two-thirds respectively in the case of the following States :—

New South Wales ..	1,651,962	Western Australia ..	1,063,039
Victoria	2,529,249	Tasmania	664,536

The preceding table shews that, amongst the States, there is a considerable difference in the amount of the average receipts per average mile worked. In this respect New South Wales shews the maximum of £1.272, while Western Australia has a minimum of £257, the average for all States being £724. In the case of the receipts per passenger-train mile the maximum occurs in Victoria with 140.64 pence, and the minimum in South Australia, 101.10 pence, the average for all States being 129.52 pence.

With regard to the number of passenger journeys in the various States, it will be seen from the table on page 553 *ante* that there has been a preponderance in favour of Victoria for years past, though it was a declining one during the years 1917 and 1918. In the year 1920-21, however, there was an increase over the two previous years.

This preponderance in Victoria is accounted for, to a great extent, by the large number of metropolitan suburban passengers in that State. Of the total number of passengers carried in Victoria in 1920-21, 123,983,817 were metropolitan suburban passengers, *i.e.*, were carried between stations within twenty miles of Melbourne, while in New South Wales the number of suburban passenger journeys between stations within thirty-four miles of Sydney, including the Richmond line, and of Newcastle, including Greta, was 110,255,795. In Sydney a large proportion of the metropolitan suburban traffic is carried on the electric and steam tramways, the number of passenger journeys during the year 1920-21 being 277,687,038. In Melbourne, on the other hand, the number of passengers carried on the cable system and Royal Park horse tramway during the same period was 149,048,681; and the number carried on the St. Kilda-Brighton, Sandringham Black Rock, North Melbourne tramways, and tramways of the Metropolitan Tramways Trust, exclusive of the cable and horse tramway, 71,628,633, making a total of 220,677,314. This matter is referred to hereinafter. (See sub-section 14.)

10. Goods and Live-Stock Traffic Receipts per Mile Worked, per Goods-train Mile, and per Ton Carried.—The following table shews the gross receipts from goods and live-stock traffic per mile worked, per goods-train mile, and per ton carried, for the year ended the 30th June, 1921:—

STATE RAILWAYS.—GOODS AND LIVE-STOCK TRAFFIC RECEIPTS PER MILE WORKED, PER GOODS-TRAIN MILE, AND PER TON CARRIED, 1920-21.

State.	Number of Goods-Train Miles. (a)	Goods and Live-Stock Tonnage.	Goods and Live-Stock Traffic Receipts.			
			Gross.	Per Average Mile Worked.	Per Goods-Train Mile.	Per Ton Carried.
	No.	Tons.	£	£	d.	d.
New South Wales ..	11,490,782	15,563,131	7,270,856	1,449	151.86	112.12
Victoria ..	7,508,415	7,572,993	4,411,276	1,041	141.00	139.80
Queensland ..	6,968,078	3,867,650	3,267,289	570	112.53	202.74
South Australia ..	2,897,374	2,682,218	1,719,556	737	142.44	153.86
Western Australia ..	2,864,634	2,604,068	1,637,979	463	137.23	150.96
Tasmania ..	892,966	672,127	320,798	504	86.22	114.55
Total ..	32,622,249	32,962,187	18,627,754	867	137.04	135.63

(a) The returns include the undermentioned mixed-train mileage, which has been divided between passenger-train miles and goods-train miles in the proportion of one-third and two-thirds respectively in the case of the following States:—

New South Wales ..	1,651,962	Western Australia ..	1,063,039
Victoria ..	2,529,249	Tasmania ..	664,536

From the preceding table it will be seen that the average cost of freight per ton ranges from 112.12 pence in New South Wales to 202.74 pence in Queensland, the average for all States being 135.63 pence.

11. **Working Expenses.**—In order to make an adequate comparison of the working expenses of the Government railways in the several States, allowance should be made for the variation of gauges and of physical and traffic conditions, not only on the railways of the different States, but also on different portions of the same system. Where traffic is light, the percentage of working expenses is naturally greater than where traffic is heavy; and this is especially true in Australia, where ton-mile rates are in many cases based on a tapering principle—*i.e.*, a lower rate per ton-mile is charged upon merchandise from remote interior districts—and where on many of the lines there is but little back-loading. Further, though efforts have been made from time to time to obtain a uniform system of accounts in the several States, the annual reports of the Commissioners do not yet comprise fully comparable data of railway expenditure.

The following table shews the total annual expenditure, comprising expenses on (a) maintenance of way, works, and buildings; (b) locomotive power—repairs and renewals; (c) carriages and wagons—repairs and renewals; (d) traffic expenses; (e) compensation; and (f) general and miscellaneous charges; and the percentage of the total of these expenses upon the corresponding gross revenues in each State for each year 1917 to 1921:—

STATE RAILWAYS.—TOTAL WORKING EXPENSES, AND PERCENTAGE OF WORKING EXPENSES ON GROSS REVENUE, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria. (a)	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
TOTAL WORKING EXPENSES.							
	£	£	£	£	£	£	£
1917	5,915,860	4,154,040	2,994,187	1,725,341	1,448,451	289,186	16,526,565
1918	5,940,447	4,451,092	3,410,157	1,747,055	1,451,334	277,952	17,278,037
1919	6,904,450	4,279,663	3,690,445	1,829,634	1,567,591	324,595	18,596,378
1920	9,570,983	6,058,912	4,323,392	2,007,361	2,009,472	390,191	24,351,312
1921	11,032,677	7,835,756	5,048,498	2,655,465	2,422,004	476,187	29,470,587

PERCENTAGE OF WORKING EXPENSES ON GROSS REVENUE.

	%	%	%	%	%	%	%
1917	70.59	69.78	78.14	75.89	77.15	84.93	72.95
1918	66.34	67.83	84.75	74.93	79.90	77.02	71.85
1919	69.33	66.53	92.62	76.51	83.70	80.87	74.26
1920	73.15	73.66	87.16	73.62	87.29	77.08	76.59
1921	77.33	79.99	95.63	90.26	89.04	79.35	82.77

(a) Including amounts paid for special and abnormal charges.

(i) *New South Wales.* In this State the total working expenses in 1920–21 amounted to £11,032,677, an increase of £1,461,693 as compared with the previous year. There were heavy increases in wages to the staff under awards of the Court of Industrial Arbitration and the Board of Trade's determination in respect of the basic wage, and also large increases in the prices paid for coal and other materials, additional payments in rates on property under the Local Government Act 1919, and additional cost of repairing damage by floods, all of which accounted for a sum of £1,645,663.

(ii) *Victoria.* In Victoria there was an increase of £1,776,844 in working expenses. This was partly due to increases in wages made by the Railway Classification Board and certain other Wages Boards, involving a total of £727,502; the higher cost of coal and heavier handling and junction charges, owing to coal being brought overland as a result of the shipping strike, amounted to £270,861.

(iii) *Queensland.* In this State the working expenses increased by £725,106 compared with 1919-20, which increase is chiefly accounted for by factors beyond control of the Department, viz.:—Increased salaries and wages due to 1920 Railway Award, £353,051; increased wages March, 1921, Basic Wage variation and automatic increases, £75,741; extra cost of coal due to September, 1920, Fuel Award, £45,000. The remainder of the increase is due to extra train mileage, viz., 292,104 miles above previous year.

(iv) *South Australia.* In South Australia the working expenses in 1920-21 shewed an increase of £648,105 over 1919-20. This increase was mainly due to higher wages through Tribunal Awards and raising of Basic Wage, £471,797; and during the year the material purchased in connection with working cost approximately £158,000 more than was paid on the same account in 1919-20.

(v) *Western Australia.* In this case the expenditure in 1920-21 was £421,531 greater than in the previous year, and this is principally attributable to Arbitration Award increases, £313,000; fuel and other material, additional and increased price, £79,000; and staff increases to cope with extra business, £28,500.

(vi) *Tasmania.* In 1920-21 the working expenses were £85,996 higher than in the previous year. This was mainly owing to the increased salaries and wages paid, higher cost of material of all descriptions, and increase in train mileage of 120,792.

In the preceding table it will be observed that the percentages of the total working expenses to the total gross earnings of the State railways have varied but slightly during the period 1916 to 1920, but during the past year there has been a distinct increase in all States, though less pronounced in Western Australia and Tasmania. The increase for all States since 1917 is 9.82 per cent.

(vii) *Working Expenses per Average Mile Worked and per Train-mile Run.* The following table shews the working expenses per average mile worked and per train-mile run in each State for the years 1917 to 1921:—

STATE RAILWAYS.—WORKING EXPENSES PER AVERAGE MILE WORKED AND PER TRAIN-MILE RUN, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
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WORKING EXPENSES PER AVERAGE MILE WORKED.

		£	£	£	£	£	£	£
1917	..	1,372	1,012	591	787	430	502	842
1918	..	1,305	1,075	646	782	419	470	838
1919	..	1,457	1,029	693	801	447	542	902
1920	..	1,927	1,445	767	867	565	614	1,144
1921	..	2,198	1,849	881	1,138	684	748	1,371

WORKING EXPENSES PER TRAIN-MILE RUN.

		d.	d.	d.	d.	d.	d.	d.
1917	..	69.93	71.10	66.98	72.26	77.25	64.24	70.37
1918	..	78.58	78.40	79.31	77.07	85.07	63.15	78.72
1919	..	83.12	78.82	89.08	81.12	88.39	70.32	83.13
1920	..	100.59	96.80	99.35	92.79	98.96	73.93	98.04
1921	..	116.17	118.21	112.86	111.56	118.19	82.37	115.10

12. **Distribution of Working Expenses.**—The subjoined table shews the distribution of working expenses, among four chief heads of expenditure, for the years 1917 to 1921 :—

STATE RAILWAYS.—DISTRIBUTION OF WORKING EXPENSES, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
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MAINTENANCE.

	£	£	£	£	£	£	£
1917	932,990	927,315	774,833	391,334	349,714	82,571	3,458,757
1918	996,502	1,049,270	851,525	304,462	371,411	72,515	3,645,685
1919	1,126,118	870,123	904,199	338,785	411,986	87,902	3,739,113
1920	1,589,472	1,288,030	988,881	350,953	485,647	100,276	4,803,259
1921	1,807,964	1,576,857	1,153,095	526,120	561,845	122,349	5,748,230

LOCOMOTIVE, CARRIAGE, AND WAGON CHARGES.

1917	2,926,231	1,953,262	1,326,902	909,660	681,243	125,889	7,923,187
1918	2,755,183	2,042,846	1,515,121	982,298	656,576	125,190	8,077,214
1919	3,277,623	2,019,967	1,650,263	981,646	689,333	149,260	8,768,092
1920	4,603,775	2,785,614	2,000,901	1,101,629	927,139	185,576	11,604,634
1921	5,459,582	3,541,967	2,374,560	1,414,866	1,095,300	229,154	14,115,429

TRAFFIC EXPENSES.

1917	1,763,466	1,137,703	821,941	391,309	375,655	64,247	4,554,321
1918	1,727,861	1,225,479	974,513	426,775	379,991	63,728	4,798,347
1919	1,927,612	1,257,685	1,067,667	459,147	418,050	72,514	5,202,675
1920	2,535,813	1,820,588	1,251,192	495,700	529,802	87,766	6,720,881
1921	2,692,003	2,483,789	1,428,008	651,579	688,077	109,521	8,352,977

OTHER CHARGES.

1917	(a) 292,673	135,760	70,511	33,038	41,839	16,479	590,300
1918	(a) 460,901	133,497	68,998	33,520	43,356	16,519	756,791
1919	(a) 573,097	131,888	68,316	50,056	48,222	14,919	846,498
1920	(a) 841,923	(b) 164,680	82,418	59,079	57,885	16,563	1,222,538
1921	(a) 773,128	(b) 233,143	92,835	62,900	76,782	15,163	1,233,951

(a) Including Refreshment Rooms, 1917, £94,914; 1918, £236,063; 1919, £248,249; 1920, £352,616; and 1921, £393,963. (b) Including Refreshment Rooms, 1920, £78,840; and 1921, £212,308.

13. **Net Revenue.**—The following table shews the net sums available to meet interest charges, also the percentage of such sums upon the capital cost of construction and equipment of lines opened for traffic in each State for the years 1917 to 1921 :—

STATE RAILWAYS.—NET REVENUE AND PERCENTAGE OF NET REVENUE ON CAPITAL COST OF LINES OPEN, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
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NET REVENUE.

	£	£	£	£	£	£	£
1917	2,464,724	1,798,679	837,780	548,189	428,931	51,319	6,129,622
1918	3,014,433	2,111,167	613,764	584,494	365,054	78,783	6,767,695
1919	3,053,723	2,152,614	294,152	561,775	305,306	76,769	6,444,339
1920	3,512,863	2,166,060	636,758	719,180	291,403	115,986	7,442,250
1921	3,234,528	1,960,097	230,914	286,563	298,028	123,858	6,133,898

PERCENTAGE OF NET REVENUE ON CAPITAL EXPENDITURE.

	%	%	%	%	%	%	%
1917	3.42	3.23	2.30	3.10	2.46	1.04	3.00
1918	4.02	3.73	1.65	3.25	2.06	1.58	3.23
1919	3.99	3.75	0.77	3.01	1.70	1.51	3.01
1920	4.43	3.72	1.59	3.76	1.61	2.21	3.38
1921	3.93	3.27	0.56	1.48	1.64	2.30	2.72

(i) *Net Revenue per Average Mile Worked and per Train-mile Run.* Tables shewing the gross earnings and the working expenses per average mile worked and per train-mile run have been given above. The net earnings, *i.e.*, the excess of gross earnings over working expenses, per average mile worked and per train-mile run are shewn in the following table :—

STATE RAILWAYS.—NET REVENUE PER AVERAGE MILE WORKED AND PER TRAIN-MILE RUN, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
NET REVENUE PER AVERAGE MILE WORKED.							
	£	£	£	£	£	£	£
1917	571	438	165	250	127	89	312
1918	663	510	116	261	105	133	328
1919	645	518	55	246	87	128	313
1920	708	516	113	311	82	183	350
1921	645	463	40	123	84	194	286

NET REVENUE PER TRAIN-MILE RUN.

	d.	d.	d.	d.	d.	d.	d.
1917	29.14	30.79	18.74	22.96	22.87	11.40	26.10
1918	39.88	37.18	14.27	25.78	21.40	17.90	30.83
1919	36.76	39.64	7.10	24.91	17.21	16.63	28.81
1920	36.92	34.61	14.63	33.24	14.42	21.97	29.96
1921	34.06	29.56	5.16	12.04	14.55	21.42	23.95

14. Traffic Conditions.—Reference has already been made to the difference in the traffic conditions on many of the lines of the Commonwealth (see sub-sections 9, 10, and 11 hereof). These conditions differ not only in the several States, but also on different lines in the same State, and apply to both passenger and goods traffic. By far the greater part of the population of Australia is confined to a fringe of country near the coast, more especially in the eastern and southern districts. A large proportion of the railway traffic between the chief centres of population is therefore carried over lines in the neighbourhood of the coast, and is thus, in some cases, open to sea-borne competition. On most of the lines extending into the more remote interior districts traffic is light; the density of population diminishes rapidly as the coastal regions are left behind; and there is a corresponding diminution in the volume of traffic, while, in comparison with other more settled countries, there is but little back-loading.

As an indication of the different traffic conditions prevailing in the several States, the following table is given shewing the numbers of passenger journeys and the tons of goods carried per 100 of mean population and per average mile worked in each State during the financial year 1920-21 :—

STATE RAILWAYS.—PASSENGER JOURNEYS AND TONNAGE OF GOODS AND LIVE STOCK, 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
PER 100 OF MEAN POPULATION.							
Passenger journeys .. No.	5,732	8,720	3,627	4,782	5,322	1,260	5,992
Goods and live stock .. Tons	739	493	506	539	782	315	605
PER AVERAGE MILE OF LINE WORKED.							
Passenger journeys .. No.	24,058	31,639	4,838	10,195	5,012	4,220	15,199
Goods and live stock .. Tons	3,101	1,787	675	1,150	736	1,055	1,533

Particulars of the actual numbers of passengers and tons of goods and live stock carried have already been given (see sub-section 2 hereof).

(i) *Metropolitan and Country Passenger Traffic.* A further indication of the difference in passenger traffic conditions might be obtained from a comparison of the volume of metropolitan, suburban, and country traffic in each State. Particulars are, however, available only for the States of New South Wales and Victoria. The subjoined table shews the number of metropolitan and country passengers carried in each of the States mentioned and the revenue derived therefrom during the year 1920-21 :—

STATE RAILWAYS.—METROPOLITAN, SUBURBAN, AND COUNTRY PASSENGER TRAFFIC, 1920-21.

Particulars.	Number of Passenger Journeys.			Revenue.		
	Metropolitan.	Country.	Total.	Metropolitan.	Country.	Total.
				£	£	£
N.S.W. ..	a 110,255,795	10,479,345	120,735,140	2,039,654	3,696,602	5,736,256
Victoria ..	b 123,983,817	10,061,866	134,045,683	1,846,564	2,551,500	4,398,124

(a) Within 34 miles of Sydney and Newcastle, including the Richmond line.

(b) Within 20 miles of Melbourne.

From this table it will be seen that the number of passenger journeys in country districts in Victoria was less than the corresponding number in New South Wales, while the number of metropolitan passenger journeys in Victoria was greater than in New South Wales, although in the latter State both Sydney and Newcastle are included. In Sydney a larger proportion of the suburban traffic is carried by the tramway systems than in Melbourne. The Sydney ferries also carry a large number of suburban passengers (see § 3. Tramways).

(ii) *Electrification of Melbourne Suburban Railways.* The scheme for the electrification of the Melbourne Suburban Railways which has been in progress during the last nine years, and which has been referred to in previous issues of the Year Book, is expected to be completed early in 1923.

The scheme comprised the electrification of 143 route miles of steam-operated railway including sidings. Lines totalling 95 route miles are now being served by electric trains. The remaining 48 route miles, comprising the sections Mordialloc to Frankston, Oakleigh to Dandenong, Melbourne to Ringwood, Kew and Darling, and Heidelberg to Eltham, are expected to be also converted to electric traction before the middle of 1923.

Electric traction has now been in operation on the Melbourne suburban system for three years and has proved highly successful. More frequent services at a cheap cost are commercially practicable, especially during the off-peak hours of the day. The number of cars in a train can readily be reduced from six to four or two at times when few people are travelling, thus reducing the cost for car maintenance. During the rush periods the automatic signalling system permits of trains being run safely at closer intervals. The trains are better lighted, and, owing to the elimination of smoke, are much cleaner than steam trains.

The higher speed of electric trains and their flexibility at terminals enable a much greater volume of traffic to be handled with the same tracks and stations than is possible with a steam service. In this way the electrification has postponed the necessity for costly duplications and extensions.

(a) *Suburban Lines.* Electric traction is now in operation on the following lines:—

Route.	Route Mileage.	Date of Commencement.
1. Sandringham—Essendon—Flemington Racecourse	18.75	29th May, 1919
2. Melbourne—St. Kilda	3.50	1st September, 1919
3. Melbourne—Port Melbourne and Piers	3.00	26th October, 1919
4. Melbourne—Williamstown Pier and Williamstown Racecourse	11.00	29th August, 1920
5. Melbourne—Coburg—Fawkner	8.25	5th December, 1920
6. Melbourne—Clifton Hill—Reservoir—Royal Park ..	11.00	31st July, 1921
7. Clifton Hill—Heidelberg	4.75	31st July, 1921
8. Essendon—Broadmeadows	5.50	4th September, 1921
9. Footscray—St. Albans	7.75	2nd October, 1921
10. Melbourne—Caulfield—Oakleigh—Glen Huntly ..	10.50	5th March, 1922
11. Caulfield—Mordialloc—Frankston	19.00	25th August, 1922.

The following lines are in process of conversion, and are expected to be completed by the dates shewn hereunder.

The estimates, however, were based on the manufacture of plant proceeding without interruption by industrial or other troubles either in Australia or Great Britain. Owing to certain industrial troubles which eventuated the completion of these lines has been delayed, but, as stated previously, it is anticipated that the conversion of the suburban system to electric traction will be completed by the middle of 1923.

Route.	Route Mileage.	Completion date forecasted.
Oakleigh—Dandenong—Spring Vale Cemetery ..	10.50	November, 1922
Melbourne—Box Hill—Kew—Glen Iris	15.00	November, 1922
Box Hill—Ringwood	6.00	January, 1923
Heidelberg—Eltham	8.25	February, 1923

(b) *Country Lines.* As the traffic on main country lines develops, it is intended to convert to electric traction busy sections which are within reasonable distance of a cheap power supply.

Investigations are at present being made in order to determine which lines offer prospects of financial success.

(c) *Parcels Traffic.* Two electric motor coaches have been constructed and put into operation for the transfer of parcels from the central stations to suburban stations, and also to convey luggage and parcels between the two main terminal stations. These coaches, which run to a fixed schedule, are the nucleus of a fleet which will eventually separate on the suburban system the whole of the parcels traffic from the passenger traffic.

(iii) *Goods Traffic.* The differing conditions of the traffic in each State might also, to some extent, be analysed by an examination of the tonnage of various classes of commodities carried, and of the revenue derived therefrom. Comparative particulars regarding the quantities of some of the leading classes of commodities carried on the Government railways are available for all the States; corresponding information regarding the revenue derived from each class of commodity is not, however, generally available in a comparable form. In this connexion it may be stated that the following resolution was passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909:—"That in view of the variations in the character and classification of the goods traffic in the different States, the subdivisions of tonnage carried and revenue in each State shall be those which best suit local conditions."

The following table shows the number of tons of various representative commodities carried, and the percentage of each class on the total tonnage carried during the financial year 1920-21 :—

STATE RAILWAYS.—CLASSIFICATION OF COMMODITIES CARRIED, 1920-21.

State.	Minerals.	Fire-wood.	Grain and Flour.	Hay, Straw, and Chaff.	Wool.	Live Stock.	All other Commodities.	Total.
TONS CARRIED.								
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
New South Wales	a 9,655,184	204,419	c 1,216,834	389,757	93,760	732,504	2,969,048	a 15,261,806
Victoria ..	b 1,441,827	850,294	1,522,899	366,387	53,964	499,601	2,838,021	7,572,093
Queensland ..	1,261,169	241,508	d 38,775	f 224,160	66,147	422,335	1,613,556	3,867,650
South Australia	662,446	217,421	781,650	110,845	29,888	140,262	739,706	2,682,218
Western Australia	270,227	475,434	427,502	100,802	15,836	82,312	1,231,455	2,604,068
Tasmania ..	184,781	66,159	e	50,741	4,222	22,501	343,723	672,127
All States ..	13,475,634	2,055,235	3,987,660	1,242,692	263,817	1,900,315	9,735,509	32,660,862

PERCENTAGE ON TOTAL TONNAGE CARRIED.

	%	%	%	%	%	%	%	%
New South Wales	63.27	1.34	7.97	2.56	0.61	4.80	19.45	100.00
Victoria ..	19.04	11.23	20.11	4.84	0.71	6.60	37.47	100.00
Queensland ..	32.61	6.24	1.00	5.80	1.71	10.92	41.72	100.00
South Australia	24.70	8.11	29.14	4.13	1.11	5.23	27.58	100.00
Western Australia	10.38	18.25	16.42	3.87	0.61	3.18	47.29	100.00
Tasmania ..	27.49	9.84	e	7.55	0.63	3.35	51.14	100.00
All States ..	41.26	6.29	12.21	3.80	0.81	5.82	29.81	100.00

(a) Exclusive of 301,325 tons of coal on which only shunting and haulage were collected. (b) Coal, stone, gravel, and sand. (c) Up journey only (to coast). (d) Flour only. (e) Included in all other commodities. (f) Sugar-cane.

15. Passenger-Mileage and Ton-Mileage.—In earlier issues of the Year Book reference has been made to the resolution on the subject of passenger-mileage and ton-mileage statistics passed at the Interstate Conference of Railway Commissioners held in Melbourne in May, 1909; and to the Report [Cd. 4697] on the same subject by a Committee appointed by the President of the Board of Trade in the United Kingdom (see Year Book No. 10, p. 654).

In the Commonwealth, information regarding "passenger-miles" and "ton-miles" is available, either wholly or in part, for four of the States only, viz., New South Wales, South Australia, Western Australia, and Tasmania, but is not available at all for either Victoria or Queensland. Of the States which give particulars of the nature indicated, New South Wales furnishes the information in a classified form according to class of passengers and nature of commodities carried. South Australia supplies particulars for all classes of passengers and of goods together, and Tasmania supplies particulars for all classes of passengers together and a classification of nature of commodities carried. Western Australia furnished particulars as to ton-miles for the years 1907 to 1912, but no records were furnished for the period 1913 to 1918.

(i) *Passenger-Miles.* Particulars for the whole of the Commonwealth period regarding total "passenger-miles" are available for one State only, namely, Tasmania. For New South Wales, to the end of 1909-10, particulars are available for suburban and extended suburban traffic only—i.e., for all stations within 34 miles of Sydney (including the Richmond line), and of Newcastle (including Greta), but since that date all passenger traffic is included. For South Australia particulars are available for each year since 1904. No particulars are available for other States. In the tables given below

the average number of passengers carried per "train" is obtained by dividing the number of "passenger-miles" by the number of "passenger-train-miles." Similarly, the "density of traffic" is obtained by dividing the number of "passenger-miles" by the "average miles worked."

STATE RAILWAYS.—SUMMARY OF "PASSENGER-MILES," 1917 TO 1921.

Year ended 30th June—	Passenger Train Mileage.	Number of Passenger Journeys.	Total Passenger-miles.	Amount Received from Passengers.	Average Number of Passengers carried per Train.	Average Mileage per Passenger-journey.	Average Receipt per Passenger-mile.	Average Fare per Passenger-journey.	Density of Traffic per Average Mile Worked.
	Miles. (000 omitted.)	No. (000 omitted.)	No. (000 omitted.)	£	No.	Miles.	d.	d.	No.
1917	10,435	96,710	1,473,707	3,202,167	141	15.24	0.52	7.95	341,690
1918	9,441	94,305	1,384,766	3,473,340	147	14.67	0.60	8.84	304,277
1919	9,689	98,569	1,367,691	3,533,869	141	13.88	0.62	8.60	288,725
1920	11,136	114,655	1,632,627	5,137,247	147	14.24	0.74	10.75	328,761
1921	11,301	120,735	1,620,857	5,736,256	143	13.42	0.85	11.57	322,976

NEW SOUTH WALES.

1917	10,435	96,710	1,473,707	3,202,167	141	15.24	0.52	7.95	341,690
1918	9,441	94,305	1,384,766	3,473,340	147	14.67	0.60	8.84	304,277
1919	9,689	98,569	1,367,691	3,533,869	141	13.88	0.62	8.60	288,725
1920	11,136	114,655	1,632,627	5,137,247	147	14.24	0.74	10.75	328,761
1921	11,301	120,735	1,620,857	5,736,256	143	13.42	0.85	11.57	322,976

SOUTH AUSTRALIA.

1917	2,635	18,107	210,303	615,909	80	11.61	0.70	8.16	95,897
1918	2,597	18,936	234,197	703,221	90	12.37	0.72	8.91	104,786
1919	2,644	20,177	238,845	703,748	90	11.84	0.71	8.37	104,527
1920	2,576	22,852	305,834	979,596	119	13.38	0.77	10.29	132,052
1921	2,815	23,788	280,904	1,019,480	100	11.81	0.87	10.29	120,438

TASMANIA.

1917	471	1,972	40,164	145,941	85	20.37	0.87	17.76	69,607
1918	448	1,874	40,385	151,874	90	21.55	0.90	19.45	68,324
1919	448	1,889	39,961	167,035	89	21.15	1.00	21.22	67,713
1920	472	2,268	46,015	209,866	97	20.29	1.09	22.21	72,465
1921	494	2,688	50,263	238,719	102	18.70	1.14	21.31	78,905

(ii) *Ton-Miles.* Particulars regarding total "ton-miles" are available for each year since 1901 for the States of New South Wales, South Australia, and Tasmania. Corresponding particulars for Western Australia are available for the years 1907 to 1912, and from the year 1919 onwards, but not for the intervening years. The average freight-paying load carried per "train" is obtained by dividing the total "ton-miles" in the fourth column by the "goods-train mileage" in the second column. In New South Wales the tonnage carried is exclusive of coal on which only shunting and haulage charges are collected, and the amount of earnings specified excludes terminals. In South Australia and Tasmania terminals are included.

STATE RAILWAYS.—SUMMARY OF "TON-MILES," 1917 TO 1921.

Year ended the 30th June—	Goods Train Mileage.	Total Tons Carried.	Total "Ton-miles."	Earnings.	Average Freight-paying Load carried per "Train."	Average Miles per Ton.	Earnings per "Ton-mile."	Density of Traffic per Average Mile Worked.
	No. (,000 omitted.)	No. (,000 omitted.)	No. (,000 omitted.)	£	Tons.	Miles.	d.	Tons.
NEW SOUTH WALES. (a)								
1917	9,866	11,468	1,136,485	3,936,639	115.19	99.10	0.83	263,502
1918	8,703	11,094	1,044,437	4,051,655	120.02	94.14	0.93	229,496
1919	10,246	12,469	1,237,806	4,889,343	120.80	99.27	0.95	261,306
1920	11,698	13,010	1,394,099	6,106,563	119.17	107.15	1.05	280,729
1921	11,491	15,262	1,418,386	6,501,914	123.44	92.94	1.10	282,631

SOUTH AUSTRALIA.

1917	3,095	2,822	298,442	1,502,363	96.41	105.74	1.21	136,089
1918	2,844	2,768	270,104	1,480,469	94.99	97.59	1.32	120,852
1919	2,769	2,619	263,984	1,536,209	95.33	100.81	1.40	115,529
1920	2,616	2,579	196,534	1,556,224	75.13	76.21	1.90	84,859
1921	2,897	2,682	217,879	1,719,556	75.20	81.23	1.81	93,383

WESTERN AUSTRALIA.

1907	1,940	2,091	144,856	964,653	74.67	69.26	1.60	86,429
1912	2,747	2,542	184,748	1,154,087	67.25	72.67	1.49	77,767
1919	2,485	2,379	173,283	1,127,539	69.73	72.83	1.56	49,411
1920	2,873	2,614	207,384	1,394,908	72.18	79.34	1.61	58,616
1921	2,865	2,604	200,379	1,637,979	69.95	76.95	1.96	56,633

TASMANIA. (b)

1917	609	380	21,288	146,248	34.93	55.98	1.65	36,894
1918	609	389	21,539	153,577	35.39	55.42	1.71	36,444
1919	660	456	23,745	190,524	35.97	52.12	1.93	39,641
1920	794	553	30,967	234,147	38.99	56.01	1.81	48,767
1921	893	650	33,638	302,594	37.67	51.78	2.15	52,807

(a) Exclusive of tonnage on which only shunting and haulage charges are collected.

(b) Exclusive of live stock.

(iii) *Classification of Commodity Ton-mileage.* As previously mentioned, New South Wales, Western Australia, and Tasmania are the only States for which particulars specifying the ton-mileage and the earnings per ton-mile for various classes of commodities are available.

The subjoined statement gives particulars for the last financial year in respect of the above-mentioned States. Miscellaneous traffic consists of timber, bark, bricks, drain-pipes in six-ton lots, and cement in full truck loads, agricultural and vegetable seeds in five-ton lots, and traffic of a similar nature. A and B classes consist of lime, vegetables, tobacco leaf, caustic soda and potash, copper ingots, fat and tallow, water and mining plant in six-ton lots, leather in one and three-ton lots, agricultural implements in five-ton lots, and other traffic of a similar nature. In the case of New South Wales, the table does not include 301,325 tons of coal on which only shunting and haulage charges were collected, nor does it include £154,024 for haulage, tonnage dues, etc.

**NEW SOUTH WALES.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED
30th JUNE, 1921.**

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings (exclusive of Terminals).	Earnings per "Ton- mile."	Per cent. on Total Tonnage.
	No.	No.	No.	£	d.	%
Coal, coke, and shale	8,614,857	358,575,478	41.62	1,133,016	0.76	56.45
Other minerals ..	1,040,327	63,108,448	60.66	182,733	0.70	6.82
Crude ores ..	222,167	23,545,133	105.98	73,920	0.75	1.46
Miscellaneous ..	1,295,602	144,597,879	111.61	631,311	1.05	8.49
Firewood ..	204,419	6,574,348	32.16	40,012	1.46	1.34
Fruit ..	132,468	29,674,645	224.01	156,087	1.26	0.87
Grain, flour, etc. (Up journey to coast) ..	1,216,834	345,408,953	283.86	793,846	0.55	7.97
Hay, straw, and chaff	389,757	94,609,967	242.74	233,197	0.59	2.55
Frozen meat ..	13,389	1,691,788	126.36	11,498	1.63	0.09
A class ..	536,507	46,703,952	87.05	349,248	1.79	3.51
B class ..	275,150	28,403,028	103.23	322,959	2.73	1.80
C class ..	33,892	2,851,374	84.13	50,283	4.23	0.22
1st class ..	208,470	16,685,393	80.04	298,487	4.29	1.37
2nd class ..	251,403	36,863,639	146.63	853,286	5.56	1.65
Wool ..	93,760	27,824,069	296.76	334,122	2.88	0.61
Live stock ..	732,804	191,267,893	261.01	1,037,909	1.30	4.80
Total ..	15,261,806	1,418,385,987	92.94	6,501,914	1.10	100.00

**WESTERN AUSTRALIA.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED
30th JUNE, 1921.**

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings.	Earnings per "Ton- mile."	Per cent. on Total Tonnage.
		No.	No.	£	d.	%
Native coal, coke, shale, and charcoal ..	234,280	25,708,816	109.74	119,101	1.11	9.00
Imported coal, coke, shale, and charcoal	35,947	1,280,075	35.61	10,714	2.01	1.38
Wool ..	15,836	1,955,601	123.49	41,266	5.06	0.61
Hay, straw, and chaff ..	100,802	11,497,795	114.06	67,047	1.40	3.87
Wheat ..	299,483	35,569,590	118.77	166,594	1.12	11.50
Firewood ..	475,434	6,739,808	14.18	50,272	1.79	18.26
Native timber ..	497,345	35,229,128	70.83	319,656	2.18	19.10
Imported timber ..	4,547	73,426	16.15	2,302	7.52	0.18
Fruit and garden produce	50,607	7,505,547	148.31	60,966	1.95	1.94
Fertilizers ..	87,849	11,889,989	135.35	26,803	0.54	3.37
Water ..	7,270	262,290	36.08	1,885	1.72	0.28
Miscellaneous (including ores and minerals) ..	347,448	13,129,025	37.79	87,170	1.59	13.34
Grain and special grain class (other than wheat, chaff, &c.) ..	128,019	10,915,422	85.26	71,607	1.57	4.92
A class ..	25,009	2,343,460	93.70	20,267	2.08	0.96
B class ..	23,778	5,887,790	247.62	45,534	1.86	0.91
C class ..	15,695	2,947,012	187.77	39,920	3.25	0.60
1st class ..	58,645	7,042,311	120.08	161,096	5.49	2.25
2nd class ..	23,697	2,828,039	119.34	85,031	7.22	0.91
3rd class ..	16,100	2,650,394	164.62	89,345	8.09	0.62
All other goods paying	73,465	3,218,539	43.81	42,082	3.14	2.82
Live stock ..	82,812	11,704,894	141.34	129,321	2.65	3.18
Total ..	2,604,068	200,378,951	76.95	1,637,979	1.96	100.00

**TASMANIA.—SUMMARY OF TON-MILEAGE FOR THE YEAR ENDED
30th JUNE, 1921.**

Particulars.	Total Tons Carried.	Total "Ton-miles."	Average Miles per Ton.	Earnings.	Earnings per "Ton- mile."	Per cent. on Total Tonnage.
	No.	No.	No.	£	d.	%
Agricultural produce ..	97,978	5,326,063	54.35	41,944	1.89	15.08
Hay, straw, chaff, and horse feed ..	50,741	3,159,252	62.26	23,144	1.75	7.81
Stable manure ..	2,657	81,961	30.84	421	1.23	0.41
Manures, other than stable	11,929	341,636	28.63	2,517	1.76	1.84
Fruit ..	6,464	349,969	54.14	4,095	2.80	0.99
Native coal ..	70,501	7,353,950	104.30	26,088	0.85	10.85
Minerals, other than native coal ..	114,280	2,261,830	19.79	19,453	2.06	17.60
Bark ..	1,728	71,850	41.57	727	2.42	0.27
Firewood ..	66,159	2,051,869	31.01	11,405	1.33	10.18
Timber ..	145,746	7,603,307	52.16	58,590	1.84	22.44
Wool ..	4,222	347,567	82.32	6,648	4.59	0.65
Miscellaneous goods ..	77,221	4,688,555	60.71	107,562	5.50	11.88
Total ..	649,626	33,637,809	51.78	302,594	2.15	100.00

16. **Interest Returned on Capital Expenditure.**—In the year 1901-2 the State Government railways made a profit of 2.94 per cent. on the capital expenditure at that time. In the subsequent years up to and including the year 1910-11, the percentages were 2.56, 3.11, 3.36, 3.98, 4.45, 4.32, 4.22, 4.26, and 4.63 respectively, rates which shew substantial increases with one exception on that for the first-named year. Since 1910-11, the rates have oscillated and have shewn a decreasing tendency, the rate for the year 1920-21 being 2.72, or 1.91 less than that for the year 1910-11. The reasons for this reduction are to be found in the increases of the charges in respect of working expenses, brought about by the opening of new lines, the higher cost of materials, and the raising of the rates of wages, while in recent years additional expenses have been incurred in consequence of the war. The return on the capital invested as at the 30th June, 1921, was not equal to the interest payable for that year, the rate of which was 4.33 per cent. This average, however, does not accurately express the position.

A false impression may be gained from these averages, but it should be borne in mind that the loan money expended on railway construction and equipment, forming as it does approximately three-fifths of the total debt, has been sunk in undertakings which are increasingly reproductive, and yielding in most cases a direct return on capital expended and representing a greater value than their original cost.

Further, in the early days of settlement in the several States the construction of railways to open up undeveloped districts was imperative, and the money raised for this purpose was borrowed at a high rate of interest. The anticipated advantage of this policy has borne fruit in the ultimate settlement of the country, and the several State Governments have furthered such development by utilizing their respective railway systems to the maximum extent consistent with the direct payment by the customers of the railways of the cost of operating and interest charged.

In Europe, on the other hand, the debt of various countries has been incurred through numerous and prolonged wars.

(i) **Profit or Loss after Payment of Working Expenses and Interest.** The net revenue of the Government railways of each State after payment of working expenses is shewn in sub-section 13 hereof. The following table shews the amount of interest payable on expenditure from loans on the construction and equipment of the railways of each State, the actual profit or loss after deducting working expenses and interest and all other charges from the gross revenue, and the percentage of such profit or loss on the total capital cost of construction and equipment.

The losses during the last four years for all the States are due to the causes to which allusion has already been made in the remarks as to increases in the working expenses of the railways (see pp. 563 and 564 *ante*). It will be observed in the following table that the interest charges in 1921 were £1,929,543 higher than they were in 1917.

STATE RAILWAYS.—INTEREST ON LOAN EXPENDITURE, PROFIT OR LOSS, AND PERCENTAGE OF PROFIT OR LOSS ON TOTAL COST, 1917 TO 1921.

Year ended 30th June.	N.S.W.	Victoria. (a)	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States
AMOUNT OF INTEREST ON RAILWAY LOAN EXPENDITURE.							
1917	£ 2,858,789	£ 2,006,197	£ 1,500,800	£ 673,985	£ 643,765	£ 181,617	£ 7,865,153
1918	3,043,349	2,120,547	1,559,136	716,234	654,059	183,977	8,277,302
1919	3,265,540	2,157,798	1,617,404	747,671	665,100	186,402	8,639,915
1920	3,641,988	2,225,881	1,723,760	789,362	690,618	197,587	9,269,196
1921	3,811,560	2,401,132	1,811,974	847,867	716,398	203,765	9,794,696

PROFIT OR LOSS AFTER PAYMENT OF WORKING EXPENSES, INTEREST, AND OTHER CHARGES.(b)

	£	£	£	£	£	£	£
1917	- 394,064	- 207,518	- 663,020	- 125,796	- 214,834	- 130,298	- 1,735,530
1918	- 28,916	- 9,380	- 945,372	- 131,740	- 289,005	- 105,194	- 1,509,607
1919	- 211,817	- 5,184	- 1,323,252	- 185,896	- 359,794	- 109,633	- 2,195,576
1920	- 129,123	- 59,821	- 1,087,001	- 70,182	- 399,215	- 81,601	- 1,826,945
1921	- 577,032	- 441,125	- 1,581,060	- 561,304	- 418,370	- 81,907	- 3,660,798

PERCENTAGE OF PROFIT OR LOSS ON CAPITAL COST OF CONSTRUCTION AND EQUIPMENT.(b)

	%	%	%	%	%	%	%
1917	-0.55	-0.37	-1.82	-0.71	-1.23	-2.65	-0.85
1918	-0.03	-0.02	-2.53	-0.73	-1.63	-2.11	-0.72
1919	-0.28	-0.01	-3.46	-1.00	-2.00	-2.16	-1.03
1920	-0.16	-0.10	-2.71	-0.36	-2.21	-1.55	-0.83
1921	-0.70	-0.74	-3.82	-2.91	-2.30	-1.52	-1.62

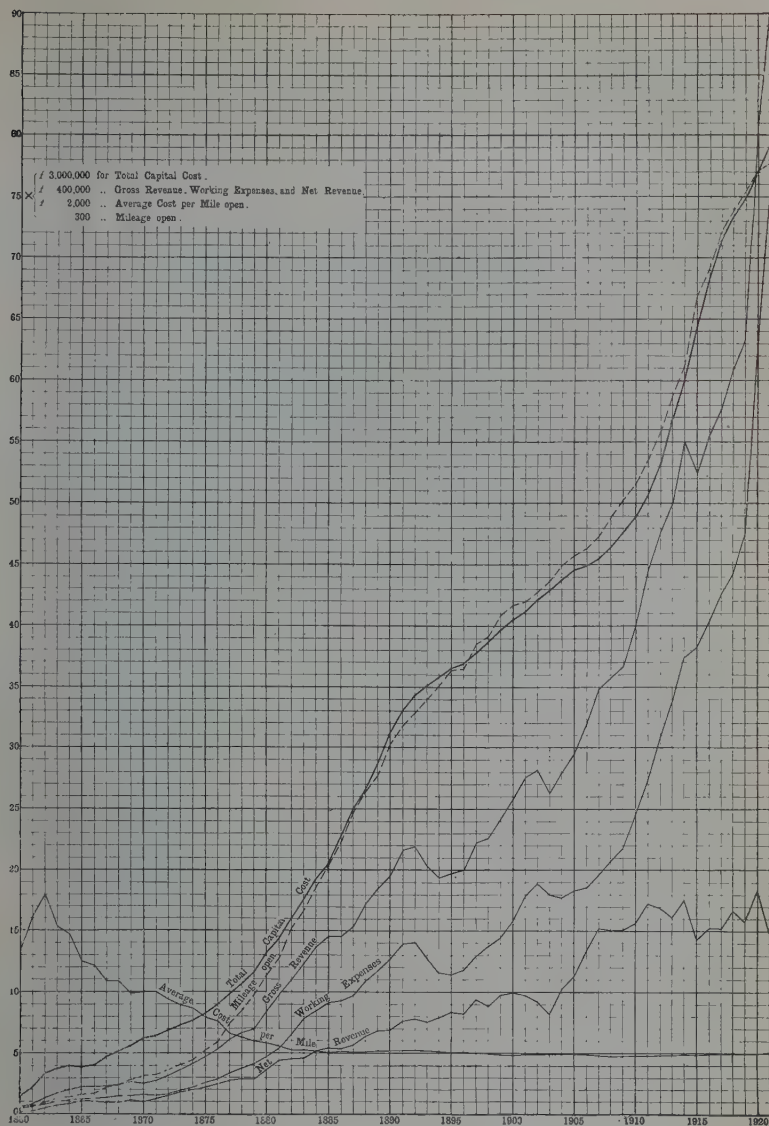
(a) Allowing for payment of special expenditure and charges (see sub-section 11 above).

(b) — indicates a loss.

17. **Passenger Fares and Goods Rates.**—Fares and rates are changed from time to time to suit the convenience and varying necessities of the railways, but, as traffic is developed and revenue increases, they are in many cases reduced to an extent consistent with the direct payment by the customers of the railways of the cost of working and interest charges.

(i) *Passenger Fares.* On the Australian Government railways two classes are provided for passenger traffic. The fares charged may be classified as follows:— (a) Fares between specified stations (including suburban fares). (b) Fares computed according to mileage rates. (c) Return, periodical, and excursion fares. (d) Special fares for workmen, school pupils, and others. Fares in class (a) are issued at rates lower than the ordinary mileage rates. Fares in class (b) are charged between stations not included in class (a). On the average, mileage-rate fares run about 2.21 pence per mile for first-class and about 1.42 pence per mile for second-class single tickets. In New South Wales, Victoria, and Queensland the mileage rates are based upon a tapering principle, i.e., a lower charge per mile is made for a long journey than for a short journey. In Victoria return fares are generally about $1\frac{1}{2}$ to $1\frac{3}{4}$ times the single fare, and the second-class are about 30 to 45 per cent. lower than the first-class fares, whilst in Western Australia the return fares are double the single rates. In all the States with

GRAPHS SHEWING THE FINANCIAL POSITION OF THE GOVERNMENT RAILWAYS OF THE COMMONWEALTH, 1860 TO 1921.



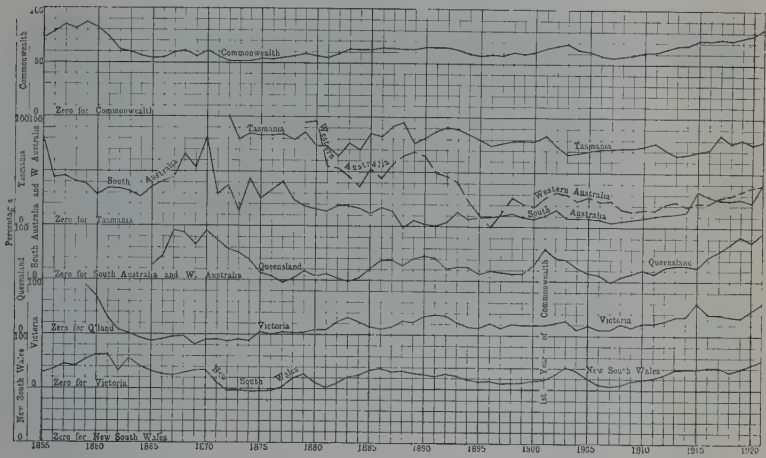
(See page 556.)

EXPLANATION OF GRAPHS.—In the above diagram the base of each small square represents throughout one year. The significance of the vertical height of each square varies, however, according to the nature of the several curves.

In the heavy curve denoting the total capital cost of the railways of the Commonwealth, the vertical side of each square denotes £3,000,000.

In the three lighter curves, representing (i) gross revenue, (ii) working expenses, and (iii) net revenue, the vertical height of each small square denotes £400,000. For the curve of average cost per mile open, the vertical side of the small square denotes £2,000. The mileage open is shewn by a dotted curve, the vertical side of each square representing 300 miles.

GRAPHS SHowING PERCENTAGES OF WORKING EXPENSES TO GROSS REVENUE OF GOVERNMENT RAILWAYS FOR STATES AND COMMONWEALTH, 1855 TO 1921.

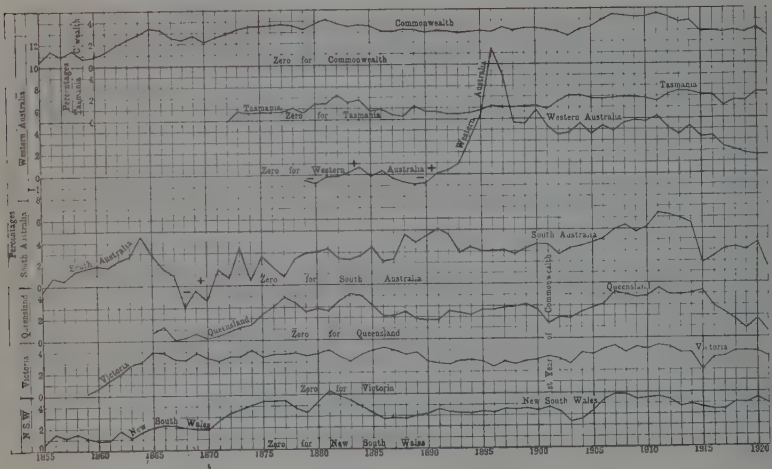


(See page 563.)

EXPLANATION OF GRAPHS.—In the above diagram the base of each small square represents throughout one year. The vertical side of a small square denotes throughout 10 per cent., the heavy zero lines being different for each State and the Commonwealth, with, however, one exception, viz., that the zero line for South Australia and Western Australia is identical.

The curve for New South Wales commences in 1855; that for Victoria commences in 1859; that for Queensland in 1865; that for Tasmania in 1872; and that for Western Australia in 1879, these being the years in which the Government railway systems of the several States were inaugurated.

GRAPHS SHOWING PERCENTAGES OF NET REVENUE TO CAPITAL COST OF GOVERNMENT RAILWAYS OF STATES AND COMMONWEALTH, 1855 TO 1921.



(See page 565.)

EXPLANATION OF GRAPHS.—In the above diagram the base of each small square represents throughout one year. The vertical side of a small square denotes 1 per cent., the thick zero lines, however, for each State and for the Commonwealth being different. This is necessary to avoid confusion of the curves.

Where the curve for any State falls below that State's zero line, loss is indicated, the working expenses having exceeded the gross revenue.

The curve for New South Wales commences in 1855; that for Victoria commences in 1859; that for Queensland in 1865; that for Tasmania in 1872; and that for Western Australia in 1879, these being the years in which the Government railway systems of the several States were inaugurated.

the exception of Western Australia the issue of ordinary return tickets outside the suburban areas has now been discontinued. Special excursion return tickets are, however, issued at certain times of the year, subject to restrictions as to break of journey and trains available for such tickets.

The following table shews the passenger fares for different distances charged in each State between stations for which specific fares are not fixed :—

ORDINARY PASSENGER MILEAGE RATES ON STATE RAILWAYS, 1921.

For a Journey of—

State.	50 Miles.		100 Miles.		200 Miles.		300 Miles.		400 Miles.		500 Miles.	
	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.	First Class.	Second Class.
New South Wales	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Victoria ..	11 0	7 2	22 0	14 7	43 11	27 3	65 4	39 9	86 10	50 9	101 6	57 10
Queensland ..	9 9	6 6	18 11	12 7	37 9	25 2	52 9	35 2	64 0	42 8	75 3	50 1
South Australia ..	9 4	6 3	17 0	11 0	32 0	20 6	46 0	23 9	59 0	36 0	71 0	43 0
West'n. Aust. ..	9 9	6 7	19 9	13 3	39 3	26 0	58 6	39 3	78 0	52 0	83 6	55 9
Tasmania ..	8 4	5 3	16 8	10 5	33 4	20 10	50 0	31 3	66 8	41 8	83 4	52 1
Average ..	10 6	6 9	20 9	13 9	41 0	27 6	61 3	41 0	..	..	..	..
Increase over 1920 ..	9 9	6 5	19 2	12 7	37 10	24 6	55 8	35 10	70 11	44 7	82 11	51 9
Average per passenger mile ..	1 1	0 9	2 3	1 6	4 5	2 10	6 6	4 2	8 6	5 1	6 10	4 2
Increase over 1920 ..	2.34	1.54	2.30	1.51	2.27	1.47	2.23	1.43	2.13	1.34	1.99	1.24
	0.26	0.18	0.27	0.18	0.27	0.17	0.26	0.16	0.26	0.16	0.16	0.10

The above rates were those in force in June, 1921. Since that time several changes have been made in the rates, of which full particulars are not yet available.

(ii) *Parcel Rates.* In all the States parcels may be transmitted by passenger train at prescribed rates, which are based upon weight and distance carried. The rates vary slightly in the different States. In New South Wales they range from fivepence for a parcel not exceeding 3 lbs. for any distance up to 25 miles to eighteen shillings and eightpence for a parcel weighing from 85 lbs. to 112 lbs. for a distance of 500 miles. In Victoria the charge for a parcel weighing from 84 lbs. to 112 lbs. for a distance of 450 miles is sixteen shillings and elevenpence. The rate in Queensland for a parcel weighing from 85 to 112 lbs for 500 miles is sixteen shillings and threepence; in South Australia for 550 miles seventeen shillings and fourpence; in Western Australia for a parcel weighing from 99 lbs. to 112 lbs. for 500 miles fifteen shillings and sixpence; and in Tasmania for a distance of 250 miles the rate is eight shillings.

(iii) *Goods Rates.* The rates charged for the conveyance of goods and merchandise may generally be divided into three classes, viz. :—(a) Mileage rates, (b) District or "development" rates, and (c) Commodity rates. In each of the States there is a number—ranging from eight in Victoria to fifteen in Tasmania—of different classes of freight. Most of the mileage rates are based upon a tapering principle, i.e., a lower charge per ton-mile is made for a long haul than for a short haul; but for some classes of freight there is a fixed rate per mile irrespective of distance. District rates are charged between specified stations, and are somewhat lower than the mileage rates. In addition to the ordinary classification of freights under class (a), certain commodities, such as wool, grain, agricultural produce, and crude ores, are given under class (c) special rates, lower than the mileage rates.

Space will not permit of exhibiting a complete analysis of goods rates in the several States. As an indication of the range and amount of such rates the subjoined tables are given. The first table shews for each State the truck-load rates charged for hauls of different distances in respect of agricultural produce not otherwise specified; these special rates are here given for this class of produce, since it is generally forwarded in truck-loads.

RATES FOR AGRICULTURAL PRODUCE IN TRUCK-LOADS ON STATE RAILWAYS, 1921.

State.	Charge per Ton in Truck-loads for a Haul of—						
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
New South Wales	7 4	11 6	14 5	16 1	17 7	19 0	
Victoria	7 0	10 10	14 4	16 6	18 8	20 8	
Queensland	5 8	10 2	12 0	13 0	14 6	15 6	
South Australia (a)	9 1	12 11	19 2	25 4	31 7	37 8	
Western Australia	8 3	10 11	14 1	19 0	24 0	26 0	
Tasmania	8 4	12 11	16 8	16 8	..	..
Average	7 7	11 6	15 1	17 9	21 3	23 9	
Increase over 1920	0 10	1 0	1 7	1 10	2 3	2 7	
	d.	d.	d.	d.	d.	d.	
Average per ton-mile	1.82	1.38	0.91	0.71	0.64	0.57	
Increase over 1920	0.20	0.12	0.10	0.08	0.07	0.06	

(a) Wheat is carried at a lower rate than that specified above for agricultural produce.

The next table shews for each State the ordinary mileage rates charged per ton for hauls of different distances in respect of (a) the highest-class freight, and (b) the lowest-class freight :—

ORDINARY GOODS MILEAGE RATES ON STATE RAILWAYS, 1921.

State.	Charge per ton for a Haul of—													
	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.	50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.		
	Highest Class Freight.							Lowest Class Freight.						
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
N.S. Wales	39 2	76 8	130 10	160 0	180 0	197 6	5 0	6 9	8 5	10 0	11 3	12 4		
Victoria ..	32 6	68 3	119 3	163 0	200 6	238 3	3 6	5 4	7 10	10 6	11 8	12 8		
Queensland	51 10	89 4	159 8	220 6	254 1	268 4	5 8	10 2	17 3	21 2	25 8	30 3		
South Aust.	40 1	77 3	145 2	199 5	247 1	287 9	4 3	8 0	13 9	16 7	18 10	21 1		
Westn. Aust.	47 1	77 1	131 10	177 9	215 4	246 8	3 3	4 1	6 2	8 3	10 4	12 5		
Tasmania ..	46 1	72 9	134 1	..	..	..	4 4	7 0	13 0	..	..	..
Average ..	42 9	76 1	136 10	184 2	219 5	247 8	4 4	6 11	11 1	13 4	15 7	17 9		
Increase over 1920 ..	4 9	8 3	14 2	14 11	19 1	22 5	0 7	0 8	1 7	1 4	1 3	1 0		
Average per ton mile	10.26	9.13	8.21	7.37	6.57	5.94	1.04	0.83	0.66	0.53	0.47	0.43		
Increase over 1920 ..	1.14	0.99	0.85	0.60	0.53	0.53	0.14	0.08	0.09	0.05	0.04	0.03		

(a) Maximum freight for distances up to 500 miles on highest-class goods to Western stations is 210 shillings per ton.

The classification of commodities varies in the several States. Generally, the highest-class freight includes expensive, bulky, or fragile articles, while the lowest-class comprises many ordinary articles of merchandise, such as are particularly identified or connected with the primary industries of each State.

In New South Wales, for example, the highest-class freight comprises such articles as boots, drapery, drugs, groceries, furniture, liquors, crockery and glassware, cutlery, ironmongery, confectionery, and carpets. In the same State the lowest-class freight includes agricultural produce, ores, manures, coal, coke, shale firewood, limestone, stone, slate, bricks, screenings, rabbit-proof netting, timber, and posts and rails.

18. **Numbers and Description of Rolling Stock, 1920-21.**—The following table shews the rolling stock in use on the State Government railways in each State, classified according to gauge :—

**ROLLING STOCK ON STATE GOVERNMENT RAILWAYS IN EACH STATE,
CLASSIFIED ACCORDING TO GAUGE, 1920-21.**

State.	Gauge.					Total.
	5 ft. 3 in.	4 ft. 8½ in.	3 ft. 6 in.	2 ft. 6 in.	2 ft. 0 in.	
New South Wales	..	1,301	..	..	..	1,301
Victoria	772	..	..	17	..	789
Queensland	..	..	674	..	6	680
South Australia	251	..	242	..	..	493
Western Australia	..	..	423	..	..	423
Tasmania	..	..	76	..	7	83
Total	1,023	1,301	1,415	17	13	3,769

LOCOMOTIVES.

New South Wales	..	1,301	..	..	..	1,301
Victoria	772	..	..	17	..	789
Queensland	..	..	674	..	6	680
South Australia	251	..	242	..	..	493
Western Australia	..	..	423	..	..	423
Tasmania	..	..	76	..	7	83
Total	1,023	1,301	1,415	17	13	3,769

PASSENGER VEHICLES.

	Ordinary.	With Motors.	Ordinary.	With Motors.	Ordinary.	With Motors.			Ordinary.	With Motors.
New South Wales	..	..	1,670	72	..	..	..	..	1,670	72
Victoria	1,482	210	..	..	..	..	49	..	1,531	210
Queensland	..	..	..	..	825	(a) 17	..	7	832	(a) 17
South Australia	450	..	..	..	181	2	..	..	631	2
Western Australia	..	..	..	..	396	..	..	..	396	..
Tasmania	..	..	..	..	156	2	..	6	162	2
Total	1,932	210	1,670	72	1,558	21	49	13	5,222	303

VEHICLES, OTHER THAN PASSENGER.

New South Wales	..	23,182	..	..	..	23,182
Victoria	20,238	..	..	249	..	20,487
Queensland	..	..	14,752	..	150	14,902
South Australia	4,056	..	5,416	..	..	9,472
Western Australia	..	..	10,128	..	..	10,128
Tasmania	..	..	1,804	..	77	1,881
Total	24,294	23,182	32,100	249	227	80,052

(a) Exclusive of 2 road motors.

19. **Number of Railway Employees.**—The following table shews the number of employees in the Railway Department of each State in each year from 1917 to 1921 inclusive, classified according to (a) salaried staff, and (b) wages staff :—

STATE RAILWAYS.—NUMBER OF EMPLOYEES IN RAILWAY DEPARTMENTS,
1917 TO 1921.

At 30th June—

State.	1917.		1918.		1919.		1920.		1921.	
	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.	Salaried Staff.	Wages Staff.
New South Wales ..	a4,590	a30,726	a4,870	a29,370	a4,937	a29,776	4,913	a29,807	5,088	32,470
Victoria ..	a2,344	a17,126	b2,380	b16,859	b2,525	b17,285	2,727	21,824	2,738	24,411
Queensland ..	3,024	10,784	3,251	11,090	3,298	11,222	3,239	10,692	3,121	11,237
South Australia ..	1,057	9,241	a1,099	a8,904	a1,075	a8,570	1,004	8,122	1,038	8,392
Western Australia ..	961	5,623	972	5,675	1,037	6,057	1,115	6,553	1,187	6,896
Tasmania ..	233	1,151	221	1,146	199	1,240	210	1,330	205	1,454
All States ..	12,209	74,651	12,793	73,044	13,069	74,150	13,208	78,328	13,377	84,860

(a) Including those absent on military or naval service.

(b) Excluding those absent on active service.

In the period under review it is seen that the totals of salaried and wages staffs fell from 86,860 in 1917 to 85,837 in 1918, but rose to 98,237 in 1921, the latter being an increase of 13.1 per cent. on the number in 1917.

20. **Accidents.**—**Number of Killed and Injured.**—The subjoined table gives particulars of the number of persons killed and injured through train accidents and the movement of rolling stock on the Government railways in each State for each of the years 1916-17 to 1920-21 inclusive :—

STATE RAILWAYS.—NUMBER OF PERSONS KILLED AND INJURED,
1917 TO 1921.

State.	In year ended 30th June—									
	1917.		1918.		1919.		1920.		1921.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
New South Wales ..	63	572	59	496	44	690	70	751	68	554
Victoria ..	32	465	44	561	52	510	38	451	41	597
Queensland ..	30	280	21	205	28	162	20	694	20	905
South Australia ..	11	247	17	189	22	193	13	157	12	174
Western Australia ..	20	106	13	86	20	140	30	127	18	134
Tasmania ..	1	4	2	7	4	7	8	31	..	47
All States ..	157	1,674	156	1,544	170	1,702	174	2,211	159	2,411

(D) Graphical Representation of Government Railway Development.

1. **General.**—Railways are so important a factor in the development of Australia that it has been deemed desirable to represent graphically the main facts of their progress from 1860 onwards. To this end the graphs shewn on pages 571 to 574 have been prepared.

2. **Capital Cost and Mileage Open** (page 571).—The graph shews that the ratio between these elements was, naturally enough, very variable from 1860 to 1870, consequent upon progressive decrease in cost of construction. It then became subject to a more regular change, implying reduction of average cost, though in recent years a slight increase has been in evidence.

3. Cost per Mile Open.—The fluctuations in cost per mile open from 1860 are clearly indicated by the graph on page 571. In 1855 the cost per mile open was no less than £28,430; by 1858 it had fallen to £17,752, when it rose again to a maximum of £35,953 in 1862. It then diminished rapidly till 1885—when it reached £10,074 per mile—rose to £10,244 in 1886, then fell slowly till 1888, when it amounted to £10,092 per mile. Again rising, this rate attained to £10,481 in 1892, since when it has, on the whole, been declining, reaching its lowest value, £9,466, in 1911. In 1912, 1913, and 1914 it rose to £9,544, £9,665, and £9,820 respectively, but fell in 1915 to £9,632. Since that year there has been a gradual increase except in 1919 when the cost was only £1 less than in 1918 (£9,943). At the end of 1921 it had risen to £10,194.

4. Gross Revenue.—This graph (page 571) exhibits considerable irregularities, the most striking of which are the maxima in 1892, 1902, 1914, and 1921. The fall commencing in 1892 was in consequence partly of the commercial crisis and partly of the then droughty conditions of several of the States, while that of 1902–3 was due to drought. In the latter case the recovery was very rapid, and there has been a continuous rise up to the year 1914. In 1915, there was a fall amounting to £1,016,421. Since 1915 each year has given an increase over the previous year's figures, the increases for 1917, 1918, 1919, 1920, and 1921 being £813,479, £1,280,565, £983,563, £6,802,538, and £3,827,581 respectively.

5. Working Expenses.—In this case the graph (page 571) has the same characteristics as those of gross revenue. It should be noted, however, that working expenses have been increasing during the last six years at a greater rate than gross revenue, owing to increases in wages and the higher cost of materials.

6. Net Revenue.—This graph (page 571) shows a fairly constant rate of increase up to 1900. Thence to 1903 there was a continuous fall, which was followed by a rapid rise to 1907. Since that year there has been a pronounced oscillation with maxima in 1911, 1914, and 1920. The amount fell from £7,340,370 in the latter year to £5,967,346 in 1921.

7. Percentage of Working Expenses on Gross Revenue.—This is shown for each State and for the Commonwealth, from the year 1855, on page 573. The curve for the Commonwealth shows considerable fluctuations, but points also to the fact that, although a slight rise occurred in 1908, there was from 1903 to 1907 a rapid decline in the percentage of working expenses to gross revenue; since 1907, however, there has been a steady increase up to 1915. In 1916 the percentage slightly declined, rose again in 1917, declined in 1918, but rose in 1919, 1920, and 1921. In the case of the individual States it will be seen that the curves show considerable fluctuations, particularly in the early years of the period under review.

8. Percentage of Net Revenue on Capital Cost.—The fluctuations in this item from the year 1855 are shown in the graph on page 574. After exhibiting somewhat remarkable oscillations in the earlier years, and less marked ones between 1885 and 1900, and also a rapid fall to 1903, the curve for the Commonwealth from that year shows a well-marked increase until the year 1908, a slight fall occurring in that year and in 1909. Maxima were reached in 1865, 1877, 1881, 1907, and 1911, viz.:—3.44, 3.71, 4.12, 4.45, and 4.54 per cent. Since 1911 the rate has varied considerably, that for 1921 being 2.03 lower than that for 1911.

For the individual States the results are in general very satisfactory up to 1911. The greatest maximum percentage attained by each of the States in any year during the period under review is as follows:—New South Wales 5.31 in 1881, Victoria 4.51, Queensland 4.51, and South Australia 6.47 in 1911, Western Australia 11.48 in 1896, and Tasmania 2.49 in 1913. Since 1911 the States (except Tasmania) have shown varying and declining rates. In the case of Tasmania the percentage rose from 1.53 in 1911 to 2.49 in 1913, declined to 1.04 in 1917, and thereafter shows a slight annual increase (except in 1919), ultimately reaching 2.30 in 1921. The effect of the drought of 1915 is discernible, also the rise of wages and higher cost of materials, to which allusion has already been made.

The remarkable maximum for Western Australia in 1896 is consequent upon the large use made of the railways at the time of the development of the Western Australian goldfields.

9. **General Indications of Graphs.**—Reviewing the cost of railways, as a whole, it may be noted that at the undermentioned dates the average cost per mile open was as follows:—

**GOVERNMENT RAILWAYS.—AVERAGE COST PER MILE OF LINE OPEN,
1859 TO 1921.**

STATE AND FEDERAL.

Date ..	1859.	1869.	1879.	1889.	1899.	1909.	1919.	1921.
	£	£	£	£	£	£	£	£
Cost per mile	27,857	19,857	11,891	10,367	9,722	9,489	9,942	10,194

While the sinister influence of the drought of 1902 is strikingly shewn in the curves (a) by the fall in the gross and net revenue in 1902-3, (b) by the fall in the percentage of net revenue on capital cost, and (c) by the increase of working expenses on gross revenue, the rapidity of recovery is even more striking, and serves to indicate the great elasticity of the economic condition of the Commonwealth. Although the percentage of net revenue on capital cost during the year 1920-21 has been exceeded in previous years, nevertheless it is satisfactory that the Government railways, necessarily constructed largely in accordance with a policy of widespread development of Australia's resources rather than as mere commercial enterprises, and costing so large a sum as £237,479,693 for construction and equipment up to the 30th June, 1921, should yield a return of 2.51 per cent.

It should be mentioned that the graphs for the Commonwealth include the Federal railways.

(E) Government Railways Generally.

1. **Rolling Stock.**—In the following table particulars of the numbers of the rolling stock employed on both the Federal and State Government railways are set out, classified according to gauge, as at the 30th June in the years 1901, 1911, 1920, and 1921 respectively, together with the percentage of the numbers for each gauge on the total for the mainland. For geographical reasons the figures for Tasmania are shewn separately from those for the mainland.

**ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE GOVERNMENT
RAILWAYS AS AT 30th JUNE, 1901, 1911, 1920, AND 1921.**

LOCOMOTIVES.

Gauge.		At 30th June—							
		1901.		1911.		1920.		1921.	
		No.	%	No.	%	No.	%	No.	%
Mainland—									
5 ft. 3 in. ..		688	35.23	705	26.84	1,012	27.16	1,023	27.15
4 ft. 8½ in. ..		495	25.34	903	34.37	1,349	36.20	1,369	36.33
3 ft. 6 in. ..		765	39.17	1,009	38.41	1,343	36.07	1,353	35.91
2 ft. 6 in. ..		5	0.26	10	0.38	17	0.46	17	0.45
2 ft. 0 in. ..		..	..	..	..	5	0.11	6	0.16
Total ..		1,953	100.00	2,627	100.00	3,726	100.00	3,768	100.00
Tasmania—									
3 ft. 6 in. ..		64	..	72	..	73	..	76	..
2 ft. 0 in. ..		7	..	7	..	7	..	7	..
Grand Total		2,024	..	2,706	..	3,806	..	3,851	..

ROLLING STOCK EMPLOYED ON THE FEDERAL AND STATE GOVERNMENT
RAILWAYS—*continued.*

PASSENGER VEHICLES, INCLUDING THOSE FITTED WITH MOTORS.

(See below.)

At 30th June—

Gauge.	1901.		1911.		1920.		1921.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	1,365	49.71	1,618	42.50	2,085	39.72	2,142	39.65
4 ft. 8½ in. ..	610	22.21	1,136	29.84	1,698	32.35	1,778	32.91
3 ft. 6 in. ..	761	27.71	1,032	27.11	1,410	26.87	1,426	26.40
2 ft. 6 in. ..	10	0.37	21	0.55	49	0.93	49	0.91
2 ft. 0 in. ..	..	..	..	..	7	0.13	7	0.13
Total ..	2,746	100.00	3,807	100.00	5,249	100.00	5,402	100.00
Tasmania—								
3 ft. 6 in. ..	163	..	170	..	172	..	158	..
2 ft. 0 in. ..	8	..	6	..	6	..	6	..
Grand Total	2,917	..	3,983	..	5,427	..	5,566	..

PASSENGER VEHICLES FITTED WITH MOTORS, INCLUDED IN TABLE OF PASSENGER VEHICLES
ABOVE.

At 30th June—

Gauge.	1901.		1911.		1920.		1921.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	2	..	..	..	152	..	210	..
4 ft. 8½ in. ..	..	..	..	..	1	..	72	..
3 ft. 6 in. ..	..	..	2	..	18	..	19	..
Total ..	2	..	2	..	171	..	301	..
Tasmania—								
3 ft. 6 in. ..	..	..	..	..	2	..	2	..
Grand Total	2	..	2	..	173	..	303	..

VEHICLES, OTHER THAN PASSENGER.

At 30th June—

Gauge.	1901.		1911.		1920.		1921.	
	No.	%	No.	%	No.	%	No.	%
Mainland—								
5 ft. 3 in. ..	12,204	31.05	15,430	27.80	24,232	30.77	24,294	30.65
4 ft. 8½ in. ..	11,540	29.36	17,112	30.83	23,708	30.11	23,928	30.19
3 ft. 6 in. ..	15,481	39.38	22,775	41.03	30,411	38.62	30,633	38.65
2 ft. 6 in. ..	82	0.21	190	0.34	249	0.32	249	0.32
2 ft. 0 in. ..	..	..	..	..	148	0.18	150	0.19
Total ..	39,307	100.00	55,507	100.00	78,748	100.00	79,254	100.00
Tasmania—								
3 ft. 6 in. ..	1,389	..	1,618	..	1,780	..	1,804	..
2 ft. 0 in. ..	50	..	71	..	77	..	77	..
Grand Total	40,746	..	57,196	..	80,605	..	81,135	..

In the period under review the percentages of the numbers of locomotives for each gauge on the total number of locomotives on all Government railways on the mainland have undergone the following changes: on the 5-ft. 3-in. gauge the percentage has fallen by 8.08 per cent., the 4-ft. 8½-in. gauge increased by 10.99, and the 3-ft. 6-in. gauge fallen by 3.26 per cent.

As regards passenger vehicles the alterations are as follow: on the 5-ft. 3-in. gauge the percentage has fallen by 10.06 per cent., the 4-ft. 8½-in. gauge increased by 10.70, and the 3-ft. 6-in. gauge fallen by 1.31 per cent.

In the case of vehicles other than passenger the changes have been small, the 5-ft. 3-in. gauge percentage having fallen 0.40, the 4-ft 8½-in gauge risen by 0.83, and the 3-ft. 6-in. gauge fallen by 0.73 per cent.

2. Railway Mileage (Route) Open for Traffic.—The Government railway route mileages open for traffic, classified according to gauge, as at the 30th June in each of the years 1901, 1911, 1920, and 1921, are set out in the following table, which gives as well the percentages of each mileage on the total on the mainland, the figures for Tasmania being shewn separately, as in the case of the preceding table relating to rolling stock:—

RAILWAY (ROUTE) MILEAGE OF THE FEDERAL AND STATE GOVERNMENT RAILWAYS, CLASSIFIED ACCORDING TO GAUGE AS AT 30th JUNE IN EACH OF THE YEARS 1901, 1911, 1920, AND 1921, WITH PERCENTAGES ON TOTAL FOR MAINLAND.

Gauge.	At 30th June—							
	1901.		1911.		1920.		1921.	
	Miles.	%	Miles.	%	Miles.	%	Miles.	%
Mainland—								
5 ft. 3 in. ..	3,696.77	30.50	4,023.61	25.78	5,215.70	23.16	5,268.28	23.24
4 ft. 8½ in. ..	2,805.34	23.14	3,717.17	23.82	6,032.05	26.79	6,059.66	26.74
3 ft. 6 in. ..	5,571.02	45.96	7,742.96	49.62	11,118.81	49.38	11,185.41	49.36
2 ft. 6 in. ..	48.25	0.40	121.90	0.78	121.90	0.54	121.90	0.53
2 ft. 0 in. ..	..	..	..	..	30.26	0.13	30.26	0.13
Total ..	12,121.38	100.00	15,605.64	100.00	22,518.72	100.00	22,665.51	100.00
Tasmania—								
3 ft. 6 in. ..	439.33	..	448.93	..	605.12	..	606.26	..
2 ft. 0 in. ..	18.72	..	23.57	..	23.58	..	23.58	..
Grand Total	12,579.43	..	16,078.14	..	23,147.42	..	23,295.35	..

From the above table it will be seen that in the twenty-one years from 1901 to 1921 the 5-ft. 3-in. gauge percentage has fallen by 7.26 per cent., and the 4-ft. 8½-in. and 3-ft. 6-in. gauges risen by 3.60 and 3.40 per cent. respectively.

3. Railway Mileage (Track) Open for Traffic.—In the following table, the track mileages of all Government railways and sidings, exclusive of Tasmania, are shewn for the years ended 30th June, 1901, 1911, 1920, and 1921, classified according to gauge, together with the percentages of each mileage on the total.

RAILWAY (TRACK) MILEAGE, FEDERAL AND STATE GOVERNMENT RAILWAYS, EXCLUSIVE OF TASMANIA, ACCORDING TO GAUGE AS AT 30th JUNE, 1901-1921.

Gauge.	At 30th June—							
	1901.		1911.		1920.		1921.	
	Miles.	%	Miles.	%	Miles.	%	Miles.	%
5 ft. 3 in. ..	4,531.09	32.13	5,102.77	27.64	6,650.84	24.71	6,671.62	24.67
4 ft. 8½ in. ..	3,387.08	24.01	4,666.34	25.28	7,794.49	28.96	7,827.13	28.96
3 ft. 6 in. ..	6,134.78	43.50	8,562.97	46.38	12,302.01	45.71	12,376.10	45.77
2 ft. 6 in. ..	51.00	0.36	128.65	0.70	131.04	0.49	131.07	0.48
2 ft. 0 in. ..	..	..	..	..	34.00	0.13	34.00	0.12
Total ..	14,103.95	100.00	18,460.73	100.00	26,912.38	100.00	27,039.92	100.00

In the period under review, the 5-ft. 3-in. gauge percentage has fallen by 7.46 per cent., and the 4-ft. 8½-in. and 3-ft. 6-in. gauges have risen by 4.95 and 2.27 per cent. respectively.

4. **Summary of Working of Federal and State Government Railways.**—In the following table a summary is given of the working of all Government railways, both Federal and State, for the year ended 30th June, 1921, fuller particulars of which have been given in the sections B and C of this chapter :—

SUMMARY OF THE WORKING OF THE FEDERAL AND STATE GOVERNMENT RAILWAYS FOR THE YEAR ENDED 30th JUNE, 1921.

Particulars.	Federal Railways.	State Railways.	Total for Commonwealth.
Total mileage open Miles	1,733.02	21,562.33	23,295.35
Average miles open during the year	1,733.02	21,496.57	23,229.59
Total train mileage	810,910	61,455,088	62,265,998
Total cost of construction of lines open £	11,184,287	226,295,406	237,479,693
Cost per mile £	6,454	210,495	10,194
Gross revenue £	332,415	35,604,485	35,936,900
Working expenses £	498,967	29,470,587	29,969,554
Percentage of working expenses on gross revenue %	150.10	82.77	83.39
Net revenue £	— 166,552	6,133,898	5,967,346
Interest payable £	288,648	9,794,696	10,083,344
Number of passenger journeys No.	102,797	326,724,294	326,827,091
Tonnage of goods and live stock carried Tons	118,491	32,962,187	33,080,678
Number of employees at 30th June, 1920—			
Salaried No.	179	13,377	13,556
Wages	1,021	84,860	85,881
Number of persons killed and injured during the year through train accidents and movement of rolling stock—			
Killed	3	159	162
Injured	10	2,411	2,421

(a) Exclusive of lines from Mount Gambier to Victorian border, and from Murrayville to Victorian border.

NOTE.—The sign (—) denotes a loss on working.

5. **Government Railway Facilities.**—On page 538 *ante* the population per mile of line open for general traffic is given in respect of the States' railways for each State. In the following table is given the mileage of all Government railways, State and Federal, in each State and Territory, per 1,000 of population :—

MILEAGE OF ALL GOVERNMENT RAILWAYS, FEDERAL AND STATE, PER 1,000 OF POPULATION IN EACH STATE AND TERRITORY AS AT 30th JUNE, 1921.

State or Territory.	Population 30th June, 1921.	Length of Line Open (Route).			Mileage per 1,000 of Population.
		State.	Federal.	Total.	
	No.	Miles.	Miles.	Miles.	Miles.
New South Wales	2,101,384	5,042.78	..	5,042.78	2.40
Victoria	1,535,938	4,266.58	..	4,266.58	2.78
Queensland	768,964	5,751.71	..	5,751.71	7.48
South Australia	497,525	2,333.19	1,075.41	3,408.60	6.85
Western Australia	333,117	3,538.23	453.99	3,992.22	11.98
Tasmania	211,984	629.84	..	629.84	2.97
Federal Territory	2,583	..	4.94	4.94	1.91
Northern Territory	3,928	..	198.68	198.68	50.58
Commonwealth	5,455,423	21,562.33	1,733.02	23,295.35	4.27

(F) Private Railways.

1. **Total Mileage Open, 1920-21.**—As has been stated in a previous part of this section (see A. 8) a number of private railway lines have from time to time been constructed in the Commonwealth. By far the greater proportion of such lines, however, has been laid down for the purpose of hauling timber, sugar-cane, coal, or other minerals, and is not generally used for the conveyance of passengers or for public traffic; in many cases the lines are often practically unballasted and are easily removable, running through bush and forest country in connexion with the timber and sugar-milling industries, and for conveying firewood for mining purposes. Private railways referred to herein include (a) lines open to the public for general passenger and goods traffic; and (b) branch lines from Government railways and other lines which are used for special purposes and which are of a permanent description. Other lines are referred to in the part of this section dealing with Tramways (see § 3, *Tramways*).

The following table gives particulars of private railways in the Commonwealth open for traffic for general and special purposes during 1920-21. A classification of these lines according to their gauge has already been given (see page 543).

MILEAGE OF PRIVATE RAILWAYS OPEN, 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
For general traffic ..	186.77	24.94	270.68	33.80	278.10	199.86	994.15
For special purposes	172.53	45.83	990.23	20.95	635.51	47.31	1,912.36
Total ..	359.30	70.77	1,260.91	54.75	913.61	247.17	2,906.51

2. **Classification of Private Railways.**—On account of the necessity for economy of space, the classification shewing particulars of the private railways open for general traffic and for special purposes has been omitted from this issue and has been transferred to the "Transport and Communication Bulletin No. 13."

3. **Private Railways open for General Traffic.**—In the last issue of the Year Book (see No. 14, pp. 612-3) a statement was given with reference to the private lines open to the public for general traffic in each of the several States of the Commonwealth. It is not proposed to repeat the information in this present issue owing to lack of space. In the case of Tasmania, it will be noticed in the table on page 585 that the two under-mentioned lines, which have not hitherto appeared, are included. Particulars of these lines are as follows :—

- (i) *Marrawah Line.* This line, which was constructed by the Tasmanian Government and is at present under the control of the Department of Public Works, runs from Smithton to Marrawah, and is 31 miles in length, 8 miles of which is of wooden rails and horse-drawn; the latter portion is being gradually converted to steel rails and proper formation for steam traffic.
- (ii) *North Mt. Farrell Line.* This line is the property of the North Mount Farrell Mining Co., but has been worked on lease up to November, 1921, by a private firm. The line is 7 miles in length and connects Tullah with the Emu Bay Co. line.

4. **Operations of Private Railways, 1920-21.**—The tabular statement given below shews particulars, so far as returns are available, for the year 1920-21, of all private railways open to the public for general traffic in the Commonwealth.

PARTICULARS OF PRIVATE RAILWAYS OPEN FOR GENERAL TRAFFIC, 1920-21.

Line.	Miles Open (Route).	Train Miles.	Capital Cost.	Gross Revenue.	Expenses.		Rolling Stock.			Passenger Journeys.	Tons of Goods, etc.	No of Employees.
					Working.	Interest, etc.	Locom.	Coaches.	Other Vehicles.			
No.	No.	£	£	£	£	£	No.	No.	No.	No.	Tons.	No.
NEW SOUTH WALES.												
C'wealth Oil Corp'n	33.00	14,604	194,500	9,027	10,620	(h)	4	(d)3	69	1,987	14,446	27
Deniliquin-Moama	45.00	46,193	162,672	31,984	22,068	(h)	4	6	64	18,105	33,247	40
South Maitland	19.44	444,671	546,086	171,794	130,004	27,304	23	27	45	1,177,957	136,378	300
Goondah-B'juck (a)	26.25	28,552	80,756	(i) 1,009	11,065	(j)	4	3	28	2,904	3,701	37
Hexham-Mimi	6.00	3,552	1,000,000	358	850	(h)	1	1	1	5,068	480	10
New Redhead Co.	9.45	(h)	102,000	12,854	(h)	(h)	(c)	2	(c)	549,312	538,241	(c)
Seaham Colliery Co.	5.13	7,920	25,000	1,296	2,930	(h)	2	2	2	19,156	9,258	13
Silverton Tramway	36.87	49,597	484,786	68,883	54,074	(h)	20	1	676	36,483	231,418	143
Liverpool-H'worthy	5.00	1,849	35,354	372	(h)	(h)	(c)	(c)	(c)	10,932	13,119	(c)
Warwick Farm	0.83	(h)	(h)	(h)	(h)	(h)	(c)	(c)	(c)	(h)	(h)	(c)
Total (b)	186.77	596,938	2,631,154	297,577	231,611	27,304	58	43	884	1,821,904	980,288	570

VICTORIA.

Kerang-Koondrook	13.94	14,430	39,229	7,421	6,476	3,519	2	2	9	15,292	22,203	13
Yarra J.-Powell't'n.	11.00	22,000	48,500	6,400	4,973	465	2	2	33	13,300	68,000	13
Total	24.94	36,430	87,729	13,821	11,449	3,984	4	4	42	28,592	90,203	26

QUEENSLAND.

Aramac-Barcaldine	41.50	15,064	87,565	13,066	8,949	3,115	3	2	2	5,299	10,590	14
Beaudesert (e)	33.00	(h)	93,559	12,337	10,651	..	1	3	1	14,090	11,585	27
Belmont Tramway	4.31	10,013	19,903	1,972	2,066	..	(c)	(c)	(c)	58,122	11,242	(c)
Buderim	7.00	(h)	(h)	(h)	(h)	..	(h)	(h)	(h)	(h)	(h)	(c)
Irvinebank	13.50	(h)	37,000	1,726	2,562	..	3	1	37	737	4,404	7
Douglas-Mossman	17.71	8,600	43,238	11,792	8,193	3,330	2	3	22	7,500	7,300	10
Invicta Hill	8.70	2,484	20,067	1,110	860	..	(c)	(c)	(c)	79	11,410	(c)
Lucinda Pt. to Stone R. and Lg. Pocket	50.75	(h)	(h)	(h)	(h)	(h)	2	3	82	(h)	47,001	(h)
Green Hills to Ham- bledon Junc.	4.50	(h)	(h)	(h)	(h)	(h)	2	3	82	(h)	47,001	(h)
Macgregor	22.13	1,692	66,328	1,162	1,106	{ 1,213 } (k)	(c)	(c)	(c)	679	176	4
Mapleton	15.00	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)	(h)
Morerton Central S.M.	8.50	2,490	17,865	1,260	714	269	2	3	2	15,168	1,086	2
South Johnstone	19.63	4,094	105,000	5,270	3,857	..	2	4	23	14,100	5,510	7
Central S.M.	21.00	5,478	(f) 64,320	1,996	3,093	..	2	2	76	1,427	4,029	6
Stannary Hills	3.45	1,791	(h)	208	104	(h)	(c)	(c)	(c)	664	2,548	(c)
Tannymorel Tram												
Total (b)	270.68	51,706	554,845	51,899	43,055	7,927	17	21	245	117,865	116,881	77

SOUTH AUSTRALIA.

Iron Knob (b)	33.80	78,470	(h)	(h)	(h)	(h)	7	3	165	1,903	450,446	51
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WESTERN AUSTRALIA.

Midland Railway (e)	278.10	263,278	2,053,521	130,321	91,604	(h)	18	18	402	65,006	79,876	259
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TASMANIA.

Emu Bay Railway (g)	102.94	91,831	616,405	52,966	38,701	24,117	9	6	155	27,939	36,853	143
Magnet Railway	9.99	2,100	18,750	328	1,646	(h)	2	1	6	529	546	6
Mt. Lyell Railway (i)	22.13	40,016	216,086	24,020	24,180	(h)	7	7	116	27,669	37,568	97
North Mt. Lyell Rly. (i)	27.80	8,739	316,638	4,415	10,410	(h)	4	4	56	4,196	13,318	21
Marrawah	31.00	24,000	60,160	6,197	4,345	..	3	2	31	1,620	25,388	11
North Mt. Farrell	6.00	7,512	(h)	1,830	1,232	..	1	3	8	1,178	(h)	7
Total (b)	199.86	174,198	1,228,039	89,756	80,514	24,117	26	23	422	63,131	113,673	285
Total for C'wealth (b)	994.15	1,201,015	6,555,288	583,374	458,233	63,332	130	112	2160	2,098,401	1,831,367	1268

(a) The property of Commissioner of Water Conservation and Irrigation; for year ended 30th June, 1920.
 (b) Incomplete. (c) Worked by Government Railways. (d) Including one motor car. (e) For year ended 31st December, 1916. (f) For year ended 30th June, 1917. (g) Including 47.66 miles owned by the Emu Bay and Mount Bischoff Railway Company. (h) Not available. (i) Including interest. (j) Included in working expenses. (k) Rental of Permanent Way Material. (l) For year ended 30th September, 1921. (m) Exclusive of shipment coal.

5. **Comparative Railway Statistics.**—On page 538 *ante* a table is given shewing the railway facilities in 1920–21 in the States, in the Northern Territory, and in the Commonwealth, the railway mileage open for traffic being compared both with the area and population.

In the table below, comparative railway statistics of a like character are given in respect of the principal countries of the world at certain dates. The dates have been so chosen as to bring into relation the latest accurate figures for both population and railway mileage.

COMPARATIVE RAILWAY STATISTICS, VARIOUS COUNTRIES.

Country.	Year.	Miles of Railway.	Population.	Area in Square Miles.	Miles of Railway.	
					Per 1,000 of Popu- lation.	Per 1,000 Sq. Miles of Territory.
Europe—						
United Kingdom ..	1920	23,734	47,307,601	121,633	0.50	195.12
Belgium ..	1919	4,649	7,684,272	11,744	0.61	395.86
Denmark ..	1920	2,662	3,289,195	17,144	0.81	155.27
France ..	1920	26,250	39,209,766	212,659	0.67	123.44
Greece ..	1920	1,470	5,447,077	41,933	0.27	35.06
Italy ..	1920	9,741	40,070,161	110,632	0.24	88.05
Netherlands ..	1920	2,377	6,841,155	12,582	0.35	188.92
Norway ..	1920	2,072	2,646,306	124,964	0.78	16.58
Portugal ..	1920	2,128	5,957,985	35,490	0.36	59.96
Spain ..	1919	9,436	20,783,844	194,783	0.45	48.44
Sweden ..	1920	9,420	5,903,762	173,035	1.60	54.44
Switzerland ..	1920	3,915	3,880,320	15,976	1.01	245.06
Asia—						
India ..	1921	37,029	319,075,132	1,802,629	0.12	20.54
Africa—						
Egypt ..	1921	(a) 3,032	13,387,000	350,000	0.23	8.66
Union of South Africa	1921	10,066	6,922,813	473,096	1.45	21.28
America, North—						
Canada ..	1920	39,196	9,030,000	3,729,665	4.34	10.51
Mexico ..	1914	10,754	15,501,684	767,198	0.69	14.02
United States ..	1919	253,152	105,710,620	2,973,774	2.39	85.13
America, South—						
Argentina ..	1920	22,590	8,698,516	1,153,119	2.60	19.59
Brazil ..	1920	17,847	30,645,296	3,275,510	0.58	5.45
Chile ..	1920	5,403	3,754,723	289,829	1.44	18.64
Australasia—						
Australia ..	1921	26,202	5,455,423	2,974,581	4.80	8.80
New Zealand ..	1921	3,147	1,305,926	103,861	2.41	30.30

(a) Exclusive of Sudan Military Railway (375 miles).

It will be seen from the above table that per 1,000 of population the Commonwealth of Australia had the greatest mileage (in 1921), 4.80 miles; the next in magnitude being Canada (1920) with 4.34 miles, Argentina (1920) with 2.60 miles, New Zealand (1920) with 2.41 miles, and the United States (1919) with 2.39 miles.

The least mileage per 1,000 of population is shown in the case of India (1921) with 0.12 mile, followed by Egypt (1921) with 0.23 mile.

With regard to the mileage per 1,000 square miles of territory, Belgium (1919) with 395.86 miles was easily first, followed by Switzerland (in 1920) with 245.06 miles, the United Kingdom (in 1920) with 195.12 miles, Netherlands (in 1920) with 188.92 miles, and Denmark (in 1920) with 155.27 miles.

The least mileage open per 1,000 square miles is that of Brazil (in 1920) with 5.45 miles.

§ 3. Tramways.

1. **General.**—Tramway systems are in operation in all the States of the Commonwealth, and in recent years considerable progress has been made in the adoption of electrical traction, the benefit of which is now enjoyed by a number of the principal towns of the Commonwealth.

In many parts of Australia private lines used for special purposes in connexion with the timber, mining, sugar, or other industries are often called tramways, but they are really private railways, and the traffic on them has nothing in common with that of the street tramways for the conveyance of passengers, which are dealt with in the present paragraph.

(i) *Total Mileage Open and Classification of Lines.* The following tables shew the total mileage of tramway lines open for general passenger traffic in each State and in the Commonwealth for the year 1920-21, and also in the Commonwealth as a whole for the years 1911-12 to 1920-21, classified (a) according to the motive power utilised. (b) according to the nature of the authority by which the lines are controlled and (c) according to gauge:—

TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC IN EACH STATE AND IN THE COMMONWEALTH, 1920-21.

Nature of Motive Power, Controlling Authority, and Gauge.	N.S. Wales.	Victoria.	Q'land.	South Australia. (a)	Western Australia.	Tasmania.	C'wealth.
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ACCORDING TO MOTIVE POWER.

	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric	156.81	105.26	42.60	66.40	50.90	23.13	445.10
Steam	73.98	..	6.00	..	17.75	..	97.73
Cable .. ..	..	45.90	..	..	..	..	45.90
Horse .. ..	..	0.63	..	19.86	7.40	..	27.89
Total	230.79	151.79	48.60	86.26	76.05	23.13	616.62

ACCORDING TO CONTROLLING AUTHORITY.

Government ..	227.29	118.13	..	19.86	52.56	..	417.84
Municipal ..	..	..	6.00	66.40	8.66	23.13	104.19
Private	3.50	33.66	42.60	..	14.83	..	94.59
Total	230.79	151.79	48.60	86.26	76.05	23.13	616.62

ACCORDING TO GAUGE.

Gauge—							
5 ft. 3 in. . . .	..	5.16	..	7.35	..	..	12.51
4 ft. 8½ in. ..	230.79	146.63	42.60	66.40	..	..	486.42
3 ft. 6 in. ..	..	..	6.00	10.01	58.90	23.13	98.04
2 ft. 0 in. ..	..	..	..	2.50	17.15	..	19.65
Total	230.79	151.79	48.60	86.26	76.05	23.13	616.62

(a) 16.36 miles included in South Australian Government railway mileage.

**TRAMWAYS.—CLASSIFICATION OF MILEAGE OPEN FOR PASSENGER TRAFFIC
IN THE COMMONWEALTH, 1911-12 TO 1920-21.**

Nature of Motive Power, Controlling Authority, and Gauge.	1911- 12.	1912- 13.	1913- 14.	1914- 15.	1915- 16.	1916- 17.	1917- 18.	1918- 19.	1919- 20.	1920- 21.
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ACCORDING TO MOTIVE POWER.

	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Electric ..	322.24	345.07	365.39	386.30	404.76	422.89	426.40	430.87	443.03	445.10
Steam ..	91.78	91.65	90.25	90.25	90.25	93.81	93.80	99.39	98.86	97.73
Cable ..	46.04	46.04	46.04	46.04	46.04	46.04	46.04	45.92	45.90	45.90
Horse ..	43.44	42.51	46.51	45.05	34.97	35.61	32.37	23.74	25.15	27.89
Total ..	503.50	525.27	548.19	567.64	576.02	598.35	598.61	599.92	612.94	616.62

ACCORDING TO CONTROLLING AUTHORITY.

Government ..	239.61	248.96	283.04	291.75	297.25	345.58	345.94	345.09	413.46	417.84
Municipal ..	82.86	102.85	114.55	129.86	143.32	158.13	158.03	159.17	103.82	104.19
Private ..	181.03	173.46	150.60	146.03	135.45	94.64	94.64	95.66	95.66	94.59
Total ..	503.50	525.27	548.19	567.64	576.02	598.35	598.61	599.92	612.94	616.62

ACCORDING TO GAUGE.

Gauge—										
5 ft. 3 in. ...	14.77	14.80	14.80	15.12	15.12	12.51	12.51	12.51	12.51	12.51
4 ft. 8½ in. ..	384.89	407.62	420.93	438.97	444.60	467.46	469.76	473.28	484.57	486.42
3 ft. 6 in. ..	76.09	78.02	87.63	91.12	93.87	95.95	93.91	94.48	96.21	98.04
2 ft. 0 in. ..	27.75	24.83	24.83	22.43	22.43	22.43	22.43	19.65	19.65	19.65
Total ..	503.50	525.27	548.19	567.64	576.02	598.35	598.61	599.92	612.94	616.62

2. New South Wales.—In this State the tramways, with but few comparatively unimportant exceptions, are the property of the Government, and are under the control of the Railway Commissioners.

(i) *Government Tramways.* In Sydney and suburbs the Government tramways are divided into distinct systems. There were in June, 1921, seven such systems in operation within the metropolitan area, the most important being the City and Suburban lines, 114.43 miles in length (209.70 miles single track); the North Shore line, 21.93 miles in length (37.20 miles single track); the Ashfield to Mortlake line, 8.47 miles in length (15.12 miles single track); Manly to the Spit, Brookvale, and Narrabeen, 10.73 miles in length (15.47 miles single track); and Rockdale to Brighton-le-Sands, 1.25 miles in length (single track). The last-mentioned line was purchased from a private company and opened for traffic on 7th June, 1914. All of these systems are now operated by electricity. There are two systems on which the motive power used is steam, namely—(a) from Kogarah to Sans Souci, 5.56 miles in length (6.99 miles single track), and (b) from Arncliffe to Bexley, 2.62 miles long (single track).

There are also Government steam tramways in operation at Newcastle, Broken Hill, Parramatta, from East to West Maitland, and from Sutherland to Cronulla. The gauge of line on all the Government tramways is 4 ft. 8½ in.

(a) *Sydney Tramways.* In October, 1862, a horse tramway, 1½ miles long, was opened for traffic in Sydney. Owing to the rails being laid higher than the road surface, the inconvenience thus caused to other traffic necessitated its removal under the authority of an Act passed in November, 1865, and it was not until the 15th September, 1879, that the first steam tramway was opened, running from Bridge-street to Hay-street via Elizabeth-street. In the following few years the steam tramways were considerably extended. The electric system was commenced by the opening of a section of the North Sydney lines on the 20th September, 1893. This was followed by the opening of the Ocean-street-Rose Bay line on the 4th October, 1898, and by the opening of the George-street-Pymont line on the 8th September, 1899, which introduced the electric system into the city. The tramways in the heart of the city, running along King-street to the suburb of Woollahra, as well as those in North Sydney, were originally worked by underground cables, and have since been converted into electric lines on the overhead trolley system. With the exception of the Kogarah Sans Souci and the Arncliffe-Bexley lines, the whole of the steam tramways in Sydney and suburbs have now been converted into electric lines, and provision for the extra power required for the electrification of the former of these two lines has been made at the central power station.

(b) *Other Tramway Systems.* In Newcastle the first section of the tramways, from Perkins-street to Plattsburg, was opened on 31st December, 1887; the total length open on the 30th June, 1921, was 34.09 miles (44.46 miles single track). At Broken Hill and Parramatta the first sections of the tramways were opened in 1902. On the 30th June, 1921, the mileage open at Broken Hill amounted to 10.05 miles (11.44 miles single track), and at Parramatta to 6.69 miles (single track). The line from East to West Maitland, 4.06 miles long (single track), was opened in February, 1909, and the line from Sutherland to Cronulla, 7.40 miles long (single track), on the 12th June, 1911. Further particulars are given below.

(c) *Particulars of all Government Tramways.* The following table shews the total length, the capital cost, the gross revenue, working expenses, net earnings, interest, percentages of working expenses on gross revenue, and of net earnings on capital cost, passengers carried and persons employed for the financial years 1917 to 1921 :—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF GOVERNMENT TRAMWAYS, 1917 TO 1921.

Year ended 30th June—	Mileage Open for Traffic. (Route.)	Total Cost of Construction and Equipment.	Gross Revenue.	Working Expenses.	Net Earnings.	Interest	Percentage of Working Expenses on Gross Revenue.	Percentage of Net Earnings on Capital Cost.	Passengers carried.	Persons employed.
	Miles.	£	£	£	£	£	%	%	No. '000	No.
1917 ..	223.98	8,309,629a	2,008,539	1,691,367	317,172	335,361	84.21	3.82	295,304	9,763
1918 ..	225.35	8,470,091a	1,992,641	1,603,260	389,381	348,546	80.46	4.60	255,741	8,955
1919 ..	225.54	8,568,138a	2,237,701	1,850,724	386,977	368,529	82.71	4.52	268,798	9,028
1920 ..	225.81	8,768,548a	2,881,797	2,486,121	395,676	404,125	86.27	4.51	324,885	8,970
1921 ..	227.29	9,060,757a	3,471,737	2,943,251	528,486	421,814	84.78	5.83	337,690	9,018

(a) £47,455 of this sum has been paid from the Consolidated Revenue, and no interest is payable thereon.

The net result, after providing for all working expenses and £421,814 for interest on the capital invested, was a profit of £106,672 as compared with a loss of £8,448 in the preceding year. During the year 1920–21, 337,689,873 passengers were carried, an increase of 12,805,222 as compared with the previous year.

(d) *Particulars of Different Systems of Government Tramways.* In the subjoined statement particulars are given of the working of the electric and steam tramways in Sydney, and of other tramways under Government control in 1920-21 :—

NEW SOUTH WALES.—PARTICULARS OF WORKING OF VARIOUS GOVERNMENT TRAMWAYS, 1920-21.

Line.	Mileage Open for Traffic.		Total Cost of Construction and Equip-ment.	Gross Revenue.	Working Expenses.	Net Earn-ings. (a)	In-terest.	Profit or Loss.(a)	Per-centage of Working Expenses on Gross Revenue.	Per-centage of Net Earn-ings on Capital Cost.(a)
	Route.	Track.								
	Miles.	Miles.	£	£	£	£	£	£	%	%
Sydney and Suburban—Electric	156.81	278.75	3,009,611	3,216,358	2,649,132	+ 567,226	374,776	+192,450	82.36	+ 7.08
Steam	8.19	9.61	52,489	21,630	29,203	— 7,573	2,490	— 10,063	135.01	— 14.43
Total	165.00	288.36	3,062,100	3,237,988	2,678,335	+ 559,653	377,266	+182,387	82.72	+ 6.94
Parramatta—Steam	6.69	6.69	39,897	13,658	14,455	— 797	1,896	— 2,693	105.84	— 2.00
Sutherland to Cronulla—Steam	7.40	7.40	52,314	19,101	16,007	+ 3,094	2,491	+ 603	83.80	+ 5.91
Newcastle—Steam	34.09	44.46	780,152	182,110	196,338	— 14,223	34,173	— 48,401	107.81	— 1.82
East to West Maitland—Steam	4.06	4.06	35,107	7,128	8,500	— 1,372	1,667	— 3,039	119.25	— 3.91
Broken Hill—Steam	10.05	11.44	91,187	11,752	29,616	— 17,864	4,321	— 22,185	252.01	— 19.59
Total	227.29	362.41	3,060,757	3,471,737	2,943,251	+ 523,486	421,814	+106,672	84.78	+ 5.83

(a) + indicates a profit ; — indicates a loss.

The total capital cost shewn in the preceding table was made up as follows :—

CAPITAL COST OF NEW SOUTH WALES GOVERNMENT TRAMWAYS AS AT 30th JUNE, 1921.

Permanent Way.	Rolling Stock.	Power-houses, Sub-stations, and Plant.	Machinery.	Work-shops.	Furni-ture.	Store Advances Account.	Total.
£	£	£	£	£	£	£	£
4,717,197	1,862,373	1,817,738	162,593	246,464	2,392	252,000	9,060,757

The average cost per mile open was £20,754 for permanent way and £19,110 for all other charges, making a total of £39,864 per mile.

During the year 1920-21, one new extension, 1.46 mile in length, was opened for traffic

(e) *Sydney Electric Tramways.* The current for the operation of the City and Suburban tramways is generated at the power-houses at Ultimo and White Horse Bay, which have been erected at a total cost of £1,817,738, including the cost of the sub-stations and plant. The total output of the power-houses, for both lighting and traction purposes, during the year 1920-21 was 131,373,411 kilowatt-hours, of which the direct-current

supply was 65,121, and the alternating current 131,308,290 kilowatt-hours. The following table gives particulars of the working of the electric tramways for the financial years 1916-17 to 1920-21 :—

NEW SOUTH WALES.—PARTICULARS OF SYDNEY ELECTRIC TRAMWAYS,
1916-17 TO 1920-21.

Year ended 30th June—	Mileage Open for Traffic.		Total Cost of Construction and Equipment.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Route.	Track.				
	Miles.	Miles.	£	Kilowatt-hours.	No.	No.
1917 ..	152.99	270.84	7,615,110	80,608,220	23,955,722	275,180,334
1918 ..	154.37	274.55	7,738,377	73,384,629	20,618,808	239,442,696
1919 ..	154.56	274.75	7,779,227	83,780,703	23,298,238	250,706,503
1920 ..	155.35	276.00	7,842,549	92,074,950	25,394,701	304,986,683
1921 ..	156.81	278.75	8,009,611	97,193,560	27,112,029	315,847,363

Year ended 30th June—	Gross Revenue.	Working Expenses.	Net Revenue.	Percentage of Working Expenses on Gross Revenue.	Cars in Use.	Persons Employed.
	£	£	£	%	No.	No.
1917	1,853,399	1,535,423	317,976	82.84	1,398	9,295
1918	1,847,868	1,457,349	390,519	78.87	1,398	8,463
1919	2,063,055	1,673,536	389,519	81.12	1,393	8,610
1920	2,676,748	2,246,674	430,074	83.93	1,394	8,440
1921	3,216,358	2,649,132	567,226	82.36	1,414	8,352

(ii) *Private Tramways.* A private steam tramway passes through the township of Parramatta. Commencing at the park gates, it runs as far as the Duck River, a distance of $3\frac{1}{2}$ miles, where it connects with the Parramatta River steamers, conveying passengers and goods to and from Sydney. This line, the gauge of which is 4 ft. 8½ in., was opened for traffic in 1883. In 1921 the number of tram miles run was 18,200, and the number of passengers conveyed 134,503.

(iii) *Sydney Harbour Ferries.* As the ferry services on the waters of Port Jackson are mainly supplementary to the suburban railway and tramway systems, it has been thought advisable to include them here rather than under Shipping. The figures for the year 1920-21 are based on returns shewing the working of two companies for that year. The business of the Watson's Bay and South Shore Ferry Company Ltd. was taken over by the Sydney Ferries Ltd. on 1st June, 1920. Returns from the latter company are for the year ended 31st December, 1920, and for the Port Jackson and Manly Steamship Co. for the year ended 30th June, 1921. The returns shew that these companies had 62 boats in commission, which were licensed to carry a total of 40,382 passengers, or an average of 651 per boat and per trip. The total number of passengers carried during the year is stated as 40,000,190, an average of 109,589 per day. In addition to the ordinary passenger traffic there are two lines providing for vehicular traffic, which afford the only rapid means of transit for such traffic between the city and the northern suburbs. The two companies employed during the year a total of 1,078 persons. The gross revenue amounted to £498,107, and the expenditure to £567,206, thus giving a net revenue of £69,099. The services are well managed, and the boats constructed during recent years—double-ended screwboats—are claimed to be superior in size and equipment to boats employed on similar service in any part of the world.

3. *Victoria*.—In Melbourne there are several tramway systems carried on under the control of various authorities, the most important being the cable system worked by the Melbourne Tramway and Omnibus Company up to the 1st July, 1916, and since that date by the Melbourne and Metropolitan Tramway Board, to which reference will be made further on. There are also four lines of electric tramways, viz. :—(a) St. Kilda to Brighton, belonging to the Government and under the control of the Railway Commissioners; (b) an electric tramway between Sandringham and Black Rock, 2.41 miles in length, which has been constructed by the Railway Department and was opened for traffic on 11th March, 1919; (c) Flemington Bridge to the Saltwater River and Keilor-road, owned by a private company; and the following lines controlled by the Melbourne and Metropolitan Tramways Board, viz. :—(d) lines connecting Prahran, Windsor, St. Kilda and Elsternwick with Glen Huntly, Caulfield, Malvern, Glenferrie and Kew, formerly controlled by the Prahran and Malvern Tramways Trust; (e) Prince's-bridge to Burwood; Burke-road to Boundary-road, Wattle Park; and Bridge-road, Richmond, to Power-street, formerly owned by the Hawthorn Tramways Trust; (f) lines from Queensberry-street, Melbourne, to Bell-street, Coburg, and Moreland-road to Baker's-road, Fawkner, formerly owned by the Melbourne, Brunswick, and Coburg Tramways Trust; (g) the Fitzroy, Northcote and Preston Tramway and (h) The Footscray Tramway. A cable tramway, 2½ miles in length, between Clifton Hill and Preston, was owned by the Northcote municipality, but was, on 2nd February, 1920, transferred to the control of, and has since been operated by, the Melbourne and Metropolitan Tramways Board. There are also systems of electric tramways at Ballarat, Bendigo, and Geelong, constructed and run by private companies. Numerous tramways have been constructed for special purposes in various parts of the State under the provisions of the Tramway Act 1890. These, however, correspond to the description of private railways referred to in sub-section 1 hereof. A tramway to the Zoological Gardens, with horse traction, is operated by the Melbourne and Metropolitan Tramways Board.

(i) *Melbourne Cable Tramways*. A short account of the formation of the Melbourne Tramway and Omnibus Company, and of the Tramway Trust, will be found in previous issues of this book. (See Year Books No. 7, page 652, and No. 9, page 679.) The company was required by the original Act, as amended in 1892, to complete the tramways by the end of the year 1893, and in return a thirty-two years' lease of the tramways was granted to it, dating from the 1st July, 1884—when the liability for interest on the loans commenced—and expiring on the 1st July, 1916. The total amount the Trust was empowered to borrow was £1,650,000, which was raised in London by means of debentures bearing interest at 4½ per cent. The premiums received amounted to £55,794, making a total of £1,705,794. This amount had been expended by the end of the year 1893, when further loan expenditure ceased. Up to the 30th June, 1911, the total cost of construction and equipment of the tramways amounted to £2,376,285 (including £4,000 expenditure in the case of the Royal Park horse tram). The first line—that to Richmond—was opened for traffic on the 11th November, 1885, and the work being rapidly pushed on, the other lines were opened at short intervals, and the whole system was completed in 1891. The complete system consisted of 43.68 miles of double-track cable lines, using constantly over 90 miles of wire rope, and 4.48 miles of horse tram line. Of the latter, 1.79 miles were transferred to the Kew Council in November, 1914, and 2.06 miles to the Hawthorn Tramway Trust in January, 1916, for electrification, leaving 0.63 mile of horse tramway at Royal Park. The gauge of track is 4 feet 8½ inches. The company also had omnibuses at work for many years down to 3rd May, 1916, when the East Brunswick line of omnibuses ceased running owing to the construction of an electric tramway along the route.

(a) *Transfer of Cable Trams*. On the 30th December, 1915, the Victorian Government appointed a Tramway Board of five members to take over the tramways as from 1st July, 1916, and in due course the Board entered into possession of the tramway properties. The amount of compensation to be paid to the company in respect of the rolling stock, car-houses, and other assets handed over by it to the Tramway Board was the subject of arbitration and of an eventual appeal to the Privy Council, which upheld the award by Mr. Justice Cussen under which a sum of £335,000 with interest at 5 per cent. from the 1st July, 1916, was payable to the company.

An action by the Tramway Board against the company to recover a sum of £587,915, for alleged breaches of the terms of the lease of the cable tramways was, after several days had been spent in part hearing the case, settled out of court by agreement between the parties.

(b) *Particulars of Working.* The subjoined statement shews the tram mileage, the number of passengers carried, and the revenue and expenditure for the years 1917 to 1921 :—

**MELBOURNE CABLE TRAMWAYS.(b)—PARTICULARS OF WORKING,
1917 TO 1921.**

Year ended 30th June—	Mileage Open (Route).			Mileage Run during Year.			Number of Passengers Carried.		
	Cable.	Horse.	Total.	Tram.			Tram.		
				Cable.	Horse.	Total.	Cable.	Horse.	Total.
Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	No.	No.	No.	
1917 (c)	43.68	0.63	44.31	12,413,485	10,444	12,423,929	(a)	(a)	103,118,377
1918 (c)	43.68	0.63	44.31	12,822,147	10,882	12,833,029	112,754,979	279,178	113,034,157
1919 (c)	43.68	0.63	44.31	13,138,992	10,645	13,149,637	118,043,604	259,177	118,302,781
1920 (u)	45.90	0.63	46.53	13,424,488	10,643	13,435,136	133,373,390	296,651	133,675,041
1921	45.90	0.63	46.53	14,038,575	10,406	14,068,981	148,755,005	293,676	149,048,681

Year ended 30th June—	Traffic Revenue.			Working Expenses.			Percentage of Working Expenses on Revenue.	No. of Employees at end of Year.
	Tram.		Total.	Tram.		Total.		
	Cable.	Horse.		Cable.	Horse.			
£	£	£	£	£	£	%	No.	
1917	(a)	(a)	841,784	(a)	(a)	462,132	54.90	2,104
1918	902,471	549	903,020	513,717	735	514,452	56.97	2,273
1919	945,286	513	945,799	577,736	1,154	578,890	61.21	2,400
1920	1,075,238	606	1,075,842	722,482	1,564	724,046	67.30	2,786
1921	1,146,955	792	1,147,747	843,333	1,100	844,433	73.60	2,836

(a) Not available. (b) Inclusive of Northcote Cable Tramway from 2nd February, 1920, to 30th June, 1920. (c) Exclusive of Northcote Cable Tramway.

(c) *Metropolitan Tramway Board.* In a previous issue of the Year Book (see No. 12, pp. 698-9) reference was made to the *Melbourne and Metropolitan Tramways Act* 1918, and to the terms under which it was to come into operation. On 2nd July, 1919, the appointments of the chairman and other members of the Tramway Board were made by the Governor in Council, and it was arranged that the Board should take over control of the Melbourne Cable Tramway System and of the Royal Park Horse Tramway on the 1st November, 1919.

On 2nd February, 1920, the Electric Tramway systems of the following Trusts were vested in the Board :—Pahran and Malvern Tramways; Hawthorn Tramways; Melbourne, Brunswick and Coburg Tramways; Fitzroy, Northcote and Preston Tramways; Footscray Tramways; and the Cable Tramway of the Northcote Council.

Authority is given by the Act to acquire the Electric Tramways of the North Melbourne Electric Tramway and Lighting Company Limited (Essendon) by agreement or by compulsory acquisition. (This was effected on 1st August, 1922.)

The Board is empowered to borrow up to £750,000 by the issue of stock or debentures, secured upon its revenues and undertakings, this being in addition to the transferred liabilities attaching to the tramways vested in it. Power is given to have an overdraft not exceeding £200,000. The power to borrow upon debentures has not been exercised so far.

The Board is preparing a general scheme for the future development of tramways in the metropolis. This scheme is to be reported upon by the Railways Standing Committee, and subsequently submitted to Parliament.

(ii) *Electric Tramways.* As already mentioned, there are in Melbourne four electric tramway systems in operation, viz.:—(a) the St. Kilda-Brighton line, (b) the Sandringham-Black Rock line, (c) the North Melbourne Tramways; and the lines controlled by the Melbourne and Metropolitan Tramways Board (previously referred to), viz., (d) The Prahran and Malvern Tramways; (e) The Hawthorn Tramways; (f) The Melbourne, Brunswick and Coburg Tramways; (g) The Fitzroy, Northcote and Preston Tramways; and (h) The Footscray Tramways.

(a) *The St. Kilda-Brighton Line.* Under the St. Kilda and Brighton Electric Street Railway Act 1904, the Board of Land and Works was authorized to construct a tramway from St. Kilda to Brighton. The amount of interest payable on the cost of the land acquired for the tramway was guaranteed by the municipalities of St. Kilda and Brighton for a period of twenty years, and authority was given by the Act to the municipalities to levy either a general or special rate not exceeding one shilling in the pound for the purpose of paying the guarantee. The profit, if any, during the first twenty years is to be set off in reduction of the guarantee. The line was opened for traffic between St. Kilda and Park-street, Middle Brighton, on the 7th May, 1906, and the extension to Brighton Beach was opened on the 22nd December following. The capital cost to the 30th June, 1921, exclusive of rolling stock, was £109,789, and of rolling stock £43,792, making a total of £153,581. The gauge of track is 5 ft. 3 in. The subjoined statement gives particulars of the working of this line for the financial years ended the 30th June, 1917 to 1921:—

ST. KILDA-BRIGHTON ELECTRIC STREET TRAMWAY, 1917 TO 1921.

Year ended 30th June—	Mileage Open (Route).	Total Cost of Construction and Equipment	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses	Interest.	Net Profit or Loss. (a)
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	£	£
1917 ..	5.16	156,242	780,320	572,735	3,450,442	27,919	20,502	6,250	+ 1,167
1918 ..	5.16	158,986	745,853	521,525	3,854,677	31,614	23,653	6,359	+ 1,602
1919 ..	5.16	164,347	932,010	527,305	4,945,627	40,048	27,207	6,574	+ 6,267
1920 ..	5.16	(b) 150,128	1,381,821	551,307	6,805,892	50,494	42,813	6,005	+ 1,676
1921 ..	5.16	153,581	1,487,928	552,772	5,572,454	47,005	63,921	6,143	- 23,059

(a) Profit is indicated by +, loss by — (b) Cost of Rolling Stock for Sandringham-Black Rock electric street railway was included under this head in preceding years.

The average fare paid per passenger was 1.99 pence in 1920-21 as against 1.76 pence in 1919-20. The gross revenue in 1920-21 was 20.41 pence per passenger car mile and £4,555 per mile of single track open.

(b) *The Sandringham-Black Rock Line.* This line has a length of 2.41 miles and, as already mentioned, was opened for traffic on 11th March, 1919

The capital cost to the 30th June, 1921, was £59,973. The cost of rolling stock at 30th June, 1919, is included in that for the St. Kilda-Brighton line. The gauge of this line is 4 ft. 8½ in. The subjoined statement gives particulars of the working of this line to the 30th June, 1921:—

SANDRINGHAM-BLACK ROCK ELECTRIC STREET TRAMWAY, 1919 TO 1921.

Year ended 30th June—	Mileage Open (Route).	Total Cost of Construction.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses	Interest.	Net Profit or Loss.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	£	£
1919 (c)	2.41	(a) 42,706	38,650	29,008	616,746	3,751	1,792	529	1,430
1920 ..	2.41	(b) 57,910	161,370	113,405	2,433,162	11,597	7,898	2,316	1,383
1921 ..	2.41	(b) 59,973	172,920	121,575	1,232,796	9,140	8,802	2,399	- 2,061

(a) Exclusive of Rolling Stock. (b) Inclusive of Rolling Stock. (c) Period, 11th March to 30th June. (—) Indicates loss.

(c) *The North Melbourne Tramways*, extending through the northern suburbs to the Saltwater River and to Keilor-road, were constructed by a private company, and were opened for traffic on the 11th October, 1906. The route and track mileage for year ended 30th September, 1921, were 7.51 and 11.43 miles respectively, the gauge of line being 4 feet 8½ inches. The number of passengers carried during the same period was 3,924,742. The current used during the year for traction purposes was 817,602 kilowatt-hours, while the number of persons employed was 124.

(d) *The Prahran and Malvern Tramways*. The lines were constructed under the control of a trust, which consisted of seven members appointed from the councils of Prahran, Malvern, St. Kilda, Caulfield, Hawthorn, Kew, and Camberwell. At the 30th June, 1921, the total route mileage open was 35.11 miles, the total track mileage being 66.12 miles, and the total capital cost £950,516. The gauge of the track is 4 ft. 8½ in. The current is supplied by the Melbourne Electric Supply Company Limited at a price varying according to the consumption of current and the price of fuel. The first section of the lines was opened for traffic on 31st May, 1910. During the year ended 30th June, 1921, the current used for traction purposes was 8,434,489 kilowatt-hours and the number of tram miles run was 3,501,763, the number of passengers carried 40,521,613, and the gross revenue £303,064. The number of cars in use was 105, and the number of persons employed 759.

(e) *The Hawthorn Tramways*. The first section of these tramways, that from Prince's-bridge to Power-street, Hawthorn, was opened for traffic on 6th April, 1916, and on 30th June, 1921, the route and track mileages in operation were 11.12 and 17.94 miles respectively. During the year ended 30th June, 1921, the current used for traction purposes was 2,817,604 kilowatt-hours, the tram miles run 1,083,956, the number of passengers carried 8,448,862, and the gross revenue £96,381. The number of cars in use was 39, the number of persons employed 217, and the capital cost £330,109.

(f) *The Melbourne, Brunswick and Coburg Tramways*. The first section of these tramways, that between Moreland-road and Bell-street, was opened for traffic on 27th April, 1916. At the 30th June, 1921, the route and track mileages open for traffic were 7.07 and 12.32 miles respectively. During the year ended 30th June, 1921, the current used for traction purposes was 1,740,430 kilowatt-hours, the tram miles run 842,809, the number of passengers carried 7,275,304, and the gross revenue £56,323. Twenty-one cars were in use, the number of persons employed was 257, and the capital cost £209,281.

(g) *Fitzroy, Northcote and Preston Tramway*. This line was opened for traffic on 1st April, 1920, and at 30th June, 1921, the route and track mileage in operation were 5.82 miles and 7.73 miles respectively. During the year the current used for traction purposes was 657,000 kilowatt-hours, tram miles run 380,257, and number of passengers carried 2,259,923. The gross revenue was £17,245. Eight cars were in use, and the number of persons employed was 42. The capital cost was £141,233.

(h) *Footscray Tramway*. The construction of this line was practically completed at 30th June, 1920, but the opening for traffic was deferred until 6th September, 1921, pending the supply of electric power from the Victorian Government Railways Power Station at Newport. The gauge is 4 ft. 8½ in. and the route and track mileage are respectively 4.73 miles and 5.31 miles. The capital cost was £129,503.

(i) *The Ballarat and Bendigo Electric Tramways* are under the control of a private company, and run along the main streets and to and from the outlying suburbs of the two cities. The total length of lines open for traffic is 21.25 route miles and 25.86 track miles, the gauge being 4 ft. 8½ in. During the year ended 31st December, 1921, 6,242,032 passengers were carried, the gross revenue being £61,118, and the working expenses £46,281. The number of cars in use was 55, and the number of persons employed 146.

(j) *The Geelong Electric Tramways*, which are privately owned, were opened for traffic on the 14th March, 1912, and up to the 31st August, 1921, the cost of construction and equipment, exclusive of generating plant, totalled £66,304. The system has a route and track mileage of 4.90 and 5.67 miles respectively, the gauge being 4 ft. 8½ in.

The car mileage for the year ending on the last-mentioned date was 232,272 miles, and the number of passengers carried 1,937,000. For the same period the revenue was £23,839, and the expenditure £17,244.

(iii) *Particulars of Working of all Electric Tramways.* The following table gives particulars of the working of all electric tramways in Victoria for each year from 1917 to 1921 inclusive :—

VICTORIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS, 1917 TO 1921.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1917	89.08	1,861,771	11,910,707	6,462,318	51,586,576	373,594	271,315	255	1,074
1918	92.17	1,939,887	13,169,343	6,775,538	57,020,726	432,921	318,163	268	1,167
1919	94.58	2,027,057	13,955,124	6,832,873	60,753,278	463,320	344,220	274	1,318
1920	105.26	2,442,746	15,758,101	7,302,713	74,359,826	553,507	418,462	294	1,554
1921	105.26	2,528,665	17,618,387	8,102,393	79,807,665	647,067	539,652	302	1,795

4. *Queensland.*—In this State there is a system of electric tramways running through the streets of the city and suburbs of Brisbane and controlled by a private company which has its head office in London. The total length of the Brisbane system was 42.60 route miles at the end of the year 1921. There is also a steam tramway in operation at Rockhampton having a length of 6 route miles.

(i) *Brisbane Electric Tramways.* These tramways are run on the overhead trolley system, the voltage of the line current being 550. The total cost of construction and equipment to the end of the year 1920 was £1,640,127, the gauge of line being 4 ft. 8½ in. The following table gives particulars of these tramways for the calendar years 1917 to 1921 :—

QUEENSLAND.—BRISBANE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING 1917 TO 1921.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1917	41.58	1,435,414	8,964,113	4,377,104	51,860,308	371,850	257,035	172	1,121
1918	41.58	1,435,414	9,453,441	4,379,679	57,456,832	412,569	264,858	173	1,103
1919	42.60	1,435,414	10,309,349	4,600,482	61,415,350	445,333	295,697	174	1,073
1920	42.60	1,435,414	11,000,875	4,934,043	69,236,690	527,264	387,456	178	1,130
1921	42.60	1,640,127	11,413,745	4,994,357	68,056,309	544,828	411,180	178	1,142

(a) Figures for 1917.

(ii) *Rockhampton Municipal Tramways.* These tramways were opened for traffic in 1909, the motive power being steam. The length of line is 6 route miles, and the gauge 3 ft. 6 in. The capital cost to 31st December, 1921, was £43,028. During the year 1,671,594 passengers were carried, the revenue being £16,464, and working expenses £15,724. The number of the staff at end of year was 48.

(iii) *Sugar-Mill Tramways.* In various parts of Queensland there are tramways used in connexion with the sugar-milling industry, chiefly for the purpose of hauling cane to the mills. Some of these lines are of a permanent nature, running through sugar-cane plantations, while others are portable lines running to various farms. Particulars of these lines are given in Transport and Communication Bulletin No. 13 as the lack of space precludes the publication of such information in this volume.

5. **South Australia.**—Up to the year 1906 the tram service in the principal streets of Adelaide and suburbs was a horse system run by various private companies. Power to acquire these lines, and to provide for their extension and management by means of a Trust, was given to the Government by the Municipal Tramways Trust Act 1906. In accordance with the provisions of the Act, a Trust consisting of eight members, of whom two were nominated by the Governor, two elected by the City Corporation, and two each by the Suburban Corporations and the District Councils involved, was formed in 1907, and a length of 49 route miles of horse traction tramways was purchased from the private companies for a sum of £282,582. On the 10th March, 1909, the electric car system was inaugurated on the Kensington route. At the end of July, 1921, a length of 66.40 route miles had been electrified and opened for traffic, the corresponding length of track opened being 114.04 miles, all of which are of a gauge of 4 ft. 8½ in. The cost of construction and equipment on the 31st July, 1921, was £1,890,067. The following table gives particulars of the tramways for the years ended 31st July, 1917 to 1921 :—

SOUTH AUSTRALIA.—ADELAIDE ELECTRIC TRAMWAYS, PARTICULARS OF WORKING, 1917 TO 1921.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	No.	No.
1917	64.46	1,703,151	10,382,667	4,954,848	45,431,691	338,361	211,662	170	1,200
1918	65.66	1,751,943	10,758,897	5,359,776	46,466,258	414,836	250,586	174	1,099
1919	65.66	1,789,487	10,730,307	5,176,264	45,882,376	428,477	284,993	185	1,337
1920	66.03	1,793,298	11,261,046	5,407,654	50,815,848	505,303	339,166	190	1,270
1921	66.40	1,890,067	12,096,515	5,785,148	55,323,737	555,421	392,824	190	1,264

There are also in South Australia 19.86 miles of Government horse tramways in country districts, worked in connexion with the railway system, of which 17.36 miles are used for passenger service, and 2.50 miles for special purposes. The subjoined statement gives various particulars of these lines :—

SOUTH AUSTRALIA.—PARTICULARS OF HORSE TRAMWAYS, 1921.

GOVERNMENT TRAMWAYS.

Particulars.	Length.	Gauge.	Nature of Traffic.
	Miles.	ft. in.	
Moonta, Moonta Bay, and Hamley Flat	(a)5.15	5 3	Passengers and goods
Gawler	(a)1.20	5 3	" "
Victor Harbour and Breakwater	1.00	5 3	" "
Dry Creek and Magazine	1.00	2 0	Explosives
Magazine and Broad Creek	1.50	2 0	"
Port Broughton and Mundoora	(a)10.01	3 6	Passengers and goods

(a) Included in mileage of Government railways.

6. **Western Australia.**—Apart from the electric tramways, there are in this State several tramways, amounting in all on the 30th June, 1921, to a length of 25.16½ miles, which are the property of the Government. Of these, which are under the control of the Harbour and Light Department, the most important is the line between Roebourne and Cossack, constructed on a 2-ft. gauge. The length of this line is 12.50 miles, and it is worked by steam. The remaining 12.66 miles belonging to the Government are made up of several short lengths, worked by steam or horses, in connexion with the jetties at certain ports for the purpose of providing the necessary communication between such

jetties and the goods sheds or warehouses. In addition to these Government lines there are electric tramway systems at Perth, under Government control; at Kalgoorlie and Boulder City, carried on by private companies; and at Fremantle, under municipal control.

(i) *Steam and Horse Tramways.* Particulars as to the working of the Government steam or horse tramways for the year ended 30th June, 1920, shew that the capital cost of the lines to that date was £85,451, the gross revenue for the year being £8,281, and the working expenses £3,495.

(ii) *Electric Tramways.* There are now four towns in Western Australia which enjoy the benefits of electric tramway systems, namely, Perth, Fremantle, Kalgoorlie, and Boulder.

(a) *The Perth Electric Tramways* were opened for traffic by a private company on the 24th September, 1899, and the system has since been extended to many of the suburbs. This tramway system was taken over by the Government on 1st July, 1913, and is now running in conjunction with the Government railways. On the 30th June, 1921, the route and track miles open for traffic were 27.40 and 36.86 miles respectively, the total cost of construction and equipment to that date being £654,047. During the year, 25,753,113 passengers were carried, the gross revenue being £224,892 and the working expenses £204,459. Eighty-three motors were in use, and the number of employees was 556. The gauge of line is 3 ft. 6 in.

(b) *The Fremantle Tramways* were opened in November, 1905, under the control of the municipality. On the 31st August, 1921, there were 8.66 route and 11.55 track miles of line open for traffic, the cost of construction and equipment at that date being £120,939. This line has a gauge of 3 ft. 6 in. During the year 5,963,482 passengers were carried, the gross revenue being £60,443 and the working expenses £52,167. Twenty-one cars were in use, and the number of employees was 132.

(c) *The Kalgoorlie and Boulder Tramways* are run by a private company, the first line being opened in 1902. At the beginning of 1904 legislative authority was given for the construction of lines in Boulder and suburbs, and in November, 1904, the last section of the Boulder system was completed. At the end of the year 1921 the total mileage of the whole system—in Kalgoorlie and Boulder—amounted to 14.83 route or 21.50 track miles, the total cost of construction and equipment being £452,318. During the year 1,655,529 passengers were carried, the gross revenue being £27,860 and the working expenses £19,981. Twenty-five motors and seven trailers were in use, and the number of employees was 40. The gauge of this line is 3 ft. 6 in.

(d) *The Leonora-Gwalia Tramway*, two and a quarter route miles in length, was initially a steam tramway. It was opened for traffic by electrification under municipal control on 5th October, 1908, but is now worked with a petrol motor by a private syndicate. It has a gauge of 3 ft. 6 in.

(e) *Particulars of Working of all Electric Tramways.* The subjoined table shews so far as returns are available, particulars of the working of all electric tramway systems in the State for the years 1917 to 1921:—

**WESTERN AUSTRALIA.—PARTICULARS OF ELECTRIC TRAMWAYS,
1917 TO 1921.**

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Em- ployed.
	Miles.	£	Kilowatt- hours.	No.	No.	£	£	No.	No.
1917a	51.61	1,161,478	5,799,337	2,955,503	19,178,047	197,880	153,847	122	526
1918	50.62	1,152,417	6,118,637	3,127,284	21,218,019	215,011	169,058	130	503
1919	50.22	1,150,018	5,922,421	2,951,653	20,954,579	209,664	170,261	130	545
1920	50.66	1,175,597	7,724,522	3,612,417	27,322,826	273,117	221,045	136	620
1921	50.90	1,227,304	8,412,175	3,472,632	33,377,124	313,195	276,607	136	728

(a) Exclusive of Leonora tramway.

(iii) *Perth Ferries.* As the Perth ferry services are mainly used for suburban passenger traffic, they are referred to in this section rather than under Shipping. Of the thirteen boats in service, four are under the control of the Western Australian Government, the other nine belonging to a private company. The number of passengers carried during the year 1920-21 was 1,192,099, the revenue and expenditure for the same period being £17,093 and £16,554 respectively, and the number of persons employed 29.

7. *Tasmania.*—(i) *Tramways.* In Hobart there is a system of electric tramways, the first line of which was opened for traffic in 1893, amounting in all to a length of 13 and 17 route and track miles respectively. This was originally owned by a private company, but is now the property of the Hobart Municipal Council. Under the authority of the Launceston Tramway Act of 1906 the Launceston City Council entered into an agreement with a private company for the construction of a system of electric tramways in the city and suburbs of Launceston. The agreement provided that the company was to run the tramways for a period of 25 years, when the council could purchase the lines and stock at cost price; the electric power required was to be supplied by the Council. This agreement, however, lapsed, and the Council has constructed the tramways, and is running them as a municipal undertaking. The system, which was opened on the 16th August, 1911, has a route and track mileage of 10.13 and 13.50 miles respectively. The gauge of track in both these systems is 3 ft. 6 in.

The following table gives particulars of the working of the two systems for the years 1917 to 1921:—

TASMANIA.—PARTICULARS OF WORKING OF ELECTRIC TRAMWAYS,
1917 TO 1921.

Year.	Mileage Open for Traffic (Route).	Total Cost of Construction and Equipment.	Current Used for Traction Purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Cars in Use.	Persons Em- ployed.
	Miles.	£	Kilowatt- hours.	No.	No.	£	£	No.	No.
1917	21.95	383,219	1,687,407	1,115,090	8,349,789	79,693	49,930	60	259
1918	22.00	389,659	1,913,720	1,192,955	9,785,155	81,918	56,103	60	253
1919	23.25	400,375	2,396,717	1,215,663	10,070,263	97,459	63,561	60	288
1920	23.13	413,060	2,192,420	1,257,911	11,961,256	112,023	83,385	63	362
1921	23.13	443,872	2,610,504	1,428,696	14,766,819	142,500	108,684	67	428

In addition, a private steam tramway 2 ft. 0 in. gauge, 6 miles in length, joins a Government line, about 6 miles from Zeehan, running in the direction of Pieman Crossing.

(ii) *Ferries.* The Hobart ferry service, being of a suburban character, is referred to here rather than under Shipping. There is one company controlling a fleet of five boats, and also a ferry operated by the Public Works Department with two boats. In the year 1919-20 the number of passengers carried was 859,059, the revenue £14,615, the working expenses £13,465, and the number of persons employed 36.

8. *Electric Traction in Commonwealth, 1920-21.*—The subjoined table gives particulars of electric tramways for each State and the Commonwealth. The returns for the Hobart tramways in Tasmania, for the Ballarat and Bendigo tramways in Victoria, for the Kalgoorlie tramways in Western Australia, and for the Brisbane tramways, are for the calendar year 1921; and for other tramways the returns are, generally, for the financial year 1920-21.

ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1920-21.

State.	Mileage open for Traffic (Route).	Total Cost of Construction and Equipment.	Current used for Traction purposes.	Tram Miles Run.	Passengers Carried.	Gross Revenue.	Working Expenses.	Percentage of Working Expenses on Gross Revenue.	Cars, Motors and Trailers.	Persons Employed.
	Miles.	£	Kilowatt-hours.	No.	No.	£	£	%	No.	No.
N.S.W. ...	156.81	8,009,611	97,193,560	27,112,029	315,847,363	3,216,358	2,649,132	82.36	1,414	8,352
Victoria...	105.28	2,528,665	17,618,387	8,102,393	79,807,665	647,067	539,652	83.40	302	1,795
Q'land ...	42.60	1,640,127	11,413,745	4,994,357	68,056,309	544,828	411,180	75.47	178	1,142
S. Aust...	66.40	1,890,067	12,096,515	5,785,148	55,323,737	555,421	392,824	70.73	190	1,264
W. Aust.	50.90	1,227,304	8,412,175	3,472,632	33,377,124	313,195	276,607	88.32	136	723
Tasmania	23.13	443,872	2,610,504	1,428,696	14,766,819	142,500	108,684	76.27	67	423
C'wealth	445.10	15,739,646	149,344,886	50,895,255	567,179,017	5,419,369	4,378,079	80.78	2,287	13,709

The percentage of working expenses on gross revenue for all electric tramways in the Commonwealth was 80.78, the range for the States being 70.73 in the case of South Australia and 88.32 in the case of Western Australia.

In "Transport and Communication Bulletin No. 13," Table No. 20, will be found an analysis of the figures in the foregoing table in respect of revenue, working expenses, etc., for the year 1920-21.

In the following table particulars are shown as to the operations of electric tramways in the Commonwealth for the period 1912 to 1921:—

ELECTRIC TRAMWAYS IN THE COMMONWEALTH, 1912 TO 1921.

Year.	Mileage open for Traffic (Route).	Total Cost of Construction and Equipm't.	Current used for Traction Purposes.	Tram Miles Run.	Passengers Carried.
	Miles.	£	Kilowatt-hours.	No.	No.
1911-12 ..	322.24	9,669,808	93,897,694	37,256,203	363,959,404
1912-13 ..	345.07	11,147,493	106,967,982	41,258,696	405,480,511
1913-14 ..	365.39	12,365,142	(a)118,894,845	44,147,626	435,055,028
1914-15 ..	386.30	13,018,010	(a)116,567,559	42,811,891	416,798,309
1915-16 ..	404.76	13,753,988	(a)116,569,324	43,262,753	432,327,059
1916-17(a) ..	421.68	14,197,194	119,352,451	43,820,585	451,586,745
1917-18 ..	426.40	14,441,189	114,798,667	41,454,040	431,389,686
1918-19 ..	430.87	14,581,578	127,094,621	44,075,173	449,782,349
1919-20 ..	443.03	15,110,405	140,011,914	47,909,439	538,683,129
1920-21 ..	445.10	15,239,646	149,344,886	50,895,255	567,179,017

Year.	Gross Revenue.	Working Expenses.	Percentage of Working Expenses on Gross Revenue.	Cars, Motors and Trailers.	Persons Employed.
	£	£	%	No.	No.
1911-12 ..	2,345,428	1,775,927	75.72	1,628	11,063
1912-13 ..	2,635,526	2,092,810	79.41	1,864	12,208
1913-14 ..	2,915,272	2,239,584	76.82	2,071	12,548
1914-15 ..	2,990,481	2,235,806	74.76	2,135	12,193
1915-16 ..	3,076,982	2,256,130	73.32	2,162	13,181
1916-17(a) ..	3,214,777	2,479,212	77.12	2,177	13,475
1917-18 ..	3,405,123	2,516,117	73.89	2,203	12,588
1918-19 ..	3,707,307	2,832,368	76.40	2,216	13,171
1919-20 ..	4,652,962	3,696,188	79.44	2,255	13,385
1920-21 ..	5,419,369	4,378,079	80.78	2,287	13,709

(a) Exclusive of Leonora tramway.

During the ten years included in the last table the percentage of working expenses on the gross revenue of all electric tramways in the Commonwealth had a maximum of 80.78 in 1920-21 and a minimum of 73.32 in 1915-16, the average over the whole period being 76.76.

SECTION XVIII.

POSTS, TELEGRAPHS AND TELEPHONES.

§ 1. Posts.

1. **The Commonwealth Postal Department.**—Under the provisions of section 51 of the Commonwealth Constitution Act the Commonwealth Parliament was empowered to make laws with respect to the control of the postal, telegraphic, and telephonic services in Australia, and by proclamation, made under section 69 of the same Act, the six separate State Post and Telegraph Departments were amalgamated and taken over by the Federal Executive on the 1st March, 1901. On the 1st December following, the Commonwealth Post and Telegraph Act 1901 came into operation, and the provisions of the various State Acts referring to the postal and telegraphic services thereby ceased to apply; it was, however, specially provided by the Act of 1901 that, until such provisions should be revoked by the Governor-General, all regulations in force, and all rates and charges levied under any State Act, should continue in force and be applied in the same manner as if such State Act were not affected by the Commonwealth Act. The administration of the Act of 1901 was placed in the hands of a Postmaster-General, a responsible Minister with Cabinet rank, and of a Secretary having chief control of the Department throughout the Commonwealth under the Postmaster-General, whilst a principal officer in each State was provided for under the style of Deputy Postmaster-General. The rates and charges levied in each State for the transmission of letters, telegrams, and postal articles at the date of Federation remained in force until the Post and Telegraph Rates Act came into operation on the 1st November, 1902. This Act secured uniformity throughout the Commonwealth in the rates charged for the conveyance of newspapers by post, and for the transmission of telegrams, but did not alter the charges made in the individual States for the transmission of letters, cards, parcels, and packets. Uniform postage rates now exist in all the States under the Postal Rates Act of 1910, which came into operation by proclamation on the 1st May, 1911. (See Sub-section 6 hereof.)

For a brief description of the postal services in the earlier period of Australian history, see Year Book No. 5, page 754.

2. **Development of Postal Services.**—In 1841 the number of post offices open in Australia was 102, situated mainly in New South Wales and Tasmania. Ten years later 101 post offices were open in New South Wales, 44 in Victoria, 72 in South Australia, and 51 in Tasmania. From the year 1851 onwards a remarkable increase in the number of post offices in Australia took place, until, in 1891, the number open totalled 4,463, of which 1,384 were situated in New South Wales, 1,729 in Victoria, 307 in Queensland, 629 in South Australia, 86 in Western Australia, and 328 in Tasmania. The number increased consistently until the end of the financial year 1916, when there were 6,082 post offices open in the Commonwealth, but the number in operation decreased in subsequent years. At the 30th June, 1921, the number open in each State was as follows:—New South Wales, 2,031; Victoria, 1,712; Queensland, 658; South Australia, 670; Western Australia, 405; Tasmania, 409; a total for the Commonwealth of 5,885. In addition there were 2,484 receiving offices.

3. **State, Interstate, and Oversea Postages for whole Commonwealth.**—In the following table the matter dealt with from 1915 to 1920-21 is divided into (i) matter posted in the Commonwealth for delivery within the Commonwealth, (ii) matter received from places outside the Commonwealth, (iii) matter despatched to places outside the Commonwealth, and (iv) total postal matter dealt with by the Commonwealth Postal Department. Although mail matter posted in the Commonwealth for delivery therein is necessarily handled at least twice, only the numbers despatched are included in the table following, which consequently gives the number of distinct articles handled. The large increase in oversea mail matter despatched and received in 1916-17 and 1917-18 is mainly attributable to postages in connexion with the Australian troops abroad. Evidence of this is furnished by the decreases recorded in 1918-19, when the majority of the troops had returned to Australia.

**STATE, INTERSTATE, AND OVERSEA POSTAGES FOR THE COMMONWEALTH,
1915 TO 1920-21.**

Year.	Letters and Post-cards.		Newspapers.		Packets.		Parcels.		Registered Articles.	
	Number (000 omitted).	Per 1,000 of Population.	Number (000 omitted).	Per 1,000 of Population.	Number (000 omitted).	Per 1,000 of Population.	Number (000 omitted).	Per 1,000 of Population.	Number (000 omitted).	Per 1,000 of Population.
1915-16	461,167	93,505	128,928	26,141	51,498	10,442	4,366	885	4,165	844
1916-17	478,287	98,104	124,939	25,627	45,926	9,420	4,337	890	4,399	902
1917-18	483,048	97,876	116,899	23,686	42,455	8,602	4,421	896	4,677	948
1918-19	485,452	96,502	122,116	24,275	39,039	7,760	4,863	967	4,741	942
1919-20	526,261	100,297	119,448	22,765	38,140	7,269	5,434	1,036	5,313	1,013
1920-21	512,021	94,603	117,824	21,770	47,567	8,789	6,633	1,226	5,664	1,046

POSTED WITHIN THE COMMONWEALTH FOR DELIVERY THEREIN.

1915-16	32,292	6,547	8,603	1,744	2,115	429	220	45	470	95
1916-17	59,301	12,163	10,209	2,094	3,007	617	245	50	468	96
1917-18	48,961	9,920	7,152	1,449	2,099	425	278	56	537	109
1918-19	38,708	7,695	7,194	1,430	2,582	513	428	85	510	101
1919-20	36,493	6,955	7,799	1,486	2,119	404	339	65	425	81
1920-21	35,804	6,615	8,931	1,650	2,440	451	371	69	415	77

OVERSEA RECEIVED.

OVERSEA DESPATCHED.

1915-16	33,668	6,826	10,011	2,030	2,955	599	466	94	334	68
1916-17	47,464	9,736	12,095	2,481	3,226	662	1,173	241	365	75
1917-18	44,942	9,106	10,896	2,208	2,826	573	1,179	239	357	72
1918-19	29,550	5,874	7,360	1,463	1,907	379	770	153	281	56
1919-20	20,705	3,946	3,838	731	1,495	235	163	31	270	51
1920-21	21,519	3,976	4,128	763	1,402	259	188	35	305	57

TOTAL POSTAL MATTER DEALT WITH BY THE COMMONWEALTH POSTAL DEPARTMENT.

1915-16	527,127	106,878	147,542	29,915	56,568	11,470	5,052	1,024	4,969	1,007
1916-17	585,052	120,003	147,243	30,202	52,159	10,699	5,755	1,181	5,232	1,073
1917-18	576,951	116,902	134,947	27,343	47,380	9,600	5,878	1,191	5,571	1,129
1918-19	553,710	110,071	136,670	27,168	43,528	8,652	6,061	1,205	5,532	1,099
1919-20	583,459	111,198	131,085	24,982	41,754	7,958	5,936	1,132	6,008	1,145
1920-21	569,344	105,194	130,883	24,183	51,409	9,499	7,192	1,330	6,384	1,180

4. **State, Interstate, and Oversea Postages for each State.**—The following table shews separately for each State the postal matter dealt with in 1920-21 under the classification adopted in the preceding paragraph with the exception of registered articles, which are dealt with separately in paragraph 7. The returns given for South Australia in this and all succeeding tables include those for the Northern Territory. Similarly, the returns for the Federal Territory are included in those for New South Wales.

STATE, INTERSTATE, AND OVERSEA POSTAGES FOR EACH STATE, 1920-21.

State.	Letters and Post-cards.		Newspapers.		Packets.		Parcels.	
	Number (,000 omitted).	Per 1,000 of Popula- tion.	Number (,000 omitted).	Per 1,000 of Popula- tion.	Number (,000 omitted).	Per 1,000 of Popula- tion.	Number (,000 omitted).	Per 1,000 of Popula- tion.
POSTED FOR DELIVERY WITHIN COMMONWEALTH.								
New South Wales	214,035	102,258	53,080	25,360	17,835	8,521	3,037	1,451
Victoria ..	139,011	90,967	26,554	17,377	8,507	5,567	1,455	952
Queensland ..	62,668	83,307	18,498	24,590	8,081	10,742	1,205	1,601
South Australia	49,338	99,639	8,421	17,006	9,006	18,188	460	929
Western Australia	26,602	80,412	5,594	16,910	3,103	9,378	347	1,049
Tasmania ..	20,367	95,687	5,677	26,670	1,035	4,861	129	606
Commonwealth	512,021	94,603	117,824	21,770	47,567	8,789	6,633	1,226
OVERSEA RECEIVED.								
New South Wales	14,575	6,963	4,287	2,048	1,054	503	159	76
Victoria ..	14,064	9,204	1,551	1,015	439	287	98	64
Queensland ..	2,912	3,871	1,384	1,840	332	441	54	72
South Australia	1,975	3,989	655	1,323	126	255	25	50
Western Australia	1,497	4,524	731	2,208	306	924	25	74
Tasmania ..	781	3,668	323	1,518	183	859	10	48
Commonwealth	35,804	6,615	8,931	1,650	2,440	451	371	69
OVERSEA DESPATCHED.								
New South Wales	11,267	5,383	2,071	989	879	420	96	46
Victoria ..	5,308	3,474	1,337	875	365	239	57	37
Queensland ..	1,975	2,625	313	416	86	114	12	16
South Australia	1,087	2,197	190	383	40	82	10	19
Western Australia	1,238	3,741	155	469	19	56	10	31
Tasmania ..	644	3,025	62	294	13	63	3	15
Commonwealth	21,519	3,976	4,128	763	1,402	259	188	35

5. **Postal Facilities.**—The subjoined statement shews the number of post and receiving offices, the area in square miles and the number of inhabitants to each post office (including receiving offices) in each State and in the Commonwealth at the end of the year 1920-21. In order to judge clearly the relative postal facilities provided in each State, the area of country to each office, as well as the number of inhabitants per office, should be taken into account.

**SQUARE MILES OF TERRITORY AND NUMBER OF INHABITANTS TO EACH POST
AND RECEIVING OFFICE ON 30th JUNE, 1921.**

State.	N.S.W. (a)	Vic.	Q'land.	S.A. (b)	W.A.	Tas.	C'wth.
Number of post and receiving offices	2,609	2,576	1,262	797	627	498	8,369
Number of square miles of territory to each office in State ..	119	34	531	1,134	1,556	53	355
Number of inhabitants to each office	806	596	609	629	531	426	652
Number of inhabitants per 100 square miles	678	1,748	115	55	34	809	183

(a) Including Federal Territory. (b) Including Northern Territory.

6. **Rates of Postage.**—Prior to the operation of the Postal Rates Act of 1910, the charges made for the postage of newspapers and parcels, and of interstate and foreign letters, were the same in all the States of the Commonwealth. The rates for the transmission of letters within the borders of a State, however, were not uniform, the Post and Telegraph Act 1901 having specially provided that the rates and charges levied in any State should continue in force. The last-mentioned provision, however, was repealed by the Postal Rates Act of 1910, which came into force by proclamation on 1st May, 1911, and uniform rates are now applicable throughout the Commonwealth. An amendment of the Act in 1918 imposed as from the 28th October of that year $\frac{1}{2}$ d. war postage in addition to the ordinary rate. A further amendment of the Act in 1920 repealed the "War Postage Section," and provided for increased rates of postage to operate as from 1st October, 1920.

The amending bill of 1918 provided for the transfer to the Treasury of all revenue derived from War Postage, which was imposed in addition to ordinary postage. From 28th October, 1918, the date the "War Postage Section" came into operation to 30th September, 1920, the date of the repeal of the section, the Treasury received from this source £1,409,060.

**POSTAL RATES ON CERTAIN ARTICLES POSTED IN THE COMMONWEALTH FOR
DELIVERY THEREIN ON AND AFTER 1st OCTOBER, 1920.**

Postal Articles.	Rates of Postage.
LETTERS	2d. per $\frac{1}{2}$ ounce
LETTER-CARDS	{ Single, 2d. each
	{ Rep'y, 2d. each half
POST-CARDS	{ Single, $1\frac{1}{2}$ d. each
	{ Reply, $1\frac{1}{2}$ d. each half
PRINTED PAPERS.—As prescribed	1d. per 2 ounces or part of 2 ounces
BOOKS.—Printed outside Australia	1d. per 4 ounces or part of 4 ounces
BOOKS.—Printed in Australia	1d. per 8 ounces or part of 8 ounces
CATALOGUES.—Set up and printed in Australia, for each catalogue	$1\frac{1}{2}$ d. per 4 ounces
MAGAZINES.—Printed in Australia, for each magazine	1d. per 8 ounces or part of 8 ounces
MAGAZINES.—Printed outside Australia, for each magazine	1d. per 4 ounces or part of 4 ounces
HANSARD.—Reports of Parliamentary Debates ..	1d. per 12 ounces or part of 12 ounces
COMMERCIAL PAPERS, PATTERNS, SAMPLES, AND MERCHANDISE.—As prescribed	$1\frac{1}{2}$ d. per 2 ounces or part of 2 ounces
NEWSPAPERS (in bulk), posted by registered news- paper proprietors, or by newsvendors, or re- turned by an agent or newsvendor to the publishing office	$1\frac{1}{2}$ d. per 20 ounces on the aggregate weight of newspapers
NEWSPAPERS.—Printed outside Australia	1d. per 4 ounces or part of 4 ounces
ALL OTHER NEWSPAPERS	For each newspaper, 1d. per 10 ounces or part of 10 ounces

Whilst the bookkeeping sections of the Constitution Act were in force, each State had necessarily to use its own postage stamps, and stamps sold in one State were only allowed to be used on letters posted in that State. The necessity for this arrangement disappeared with the change in the keeping of the Commonwealth accounts in 1910, and stamps of a uniform design are now used throughout the Commonwealth.

(i) *Letters.* Under the Postal Rates Act of 1910, the charge (1d. for every $\frac{1}{2}$ -oz.) for letters posted for delivery within the Commonwealth was made uniform throughout all States. Previous to 1st May, 1911, various local and interstate rates were in operation within the States. The postage to the United Kingdom was reduced in January, 1891, from sixpence per half-ounce via the Red Sea, and fourpence via the Cape of Good Hope, to the uniform rate of twopence half-penny. In 1891 the States were represented at the Congress of the Universal Postal Union held in Vienna, and on the 4th July a convention was signed on their behalf, by which they joined the Union from the 1st October of that year. On that date the rate of postage to all British possessions and to foreign countries included in the Union was reduced to twopence half-penny. The rate on postal articles to places within the Commonwealth and to British Possessions overseas was reduced from 1st May, 1911, and from that date until 28th October, 1918, letters to British destinations were carried at the rate of one penny per half-ounce. From the last-named date until 1st October, 1920, $\frac{3}{4}$ d. war postage in addition to the ordinary rate was charged on each letter. The present charge throughout the Commonwealth for postage of interstate letters and of letters to the United Kingdom and to British possessions, including the islands in the Pacific, which, prior to the war were held by Germany, but are now under British control, is uniformly twopence per half-ounce. The rate on letters to foreign countries (with the exception of New Hebrides, Banks and Torres Islands, where the rate is twopence per half-ounce), is fourpence for the first ounce and twopence for each additional ounce.

(ii) *Newspapers.* The different rates charged for the carriage of newspapers in the various States prior to Federation continued after the control of the Postal Departments had been taken over by the Commonwealth, until the 1st November, 1902, when a uniform rate was imposed by the Post and Telegraph Rates Act 1902. At present the rate on all newspapers posted for delivery in the Commonwealth or for transmission to Papua, the Mandated Pacific Islands, and Nauru (without condition as to the number contained in each addressed wrapper posted) by registered newspaper proprietors, or by newsvendors, or returned by newsvendor or agent to the publishing office, is three halfpence per twenty ounces on the aggregate weight. The rate to New Zealand, the islands annexed thereto, and Fiji is three half-pence per sixteen ounces on the aggregate weight, which must not exceed 20 lbs. On all other registered newspapers posted within the Commonwealth for delivery therein or for transmission to New Zealand and the islands annexed thereto, Fiji, and Papua, the charge is one penny per ten ounces for each newspaper. At the end of the year 1919 there were in all 1,455 publications registered in the Commonwealth under section 29 of the Post and Telegraph Act 1901 for transmission by post as newspapers. The rates on registered newspapers for transmission to the United Kingdom are, by the ordinary route, for each newspaper not exceeding two ounces one penny, exceeding two ounces but not exceeding eight ounces three half-pence, exceeding eight ounces but not exceeding ten ounces threepence, every additional two ounces one half-penny. By the all-sea route the rate for each newspaper exceeding eight ounces is three half-pence per sixteen ounces. Via America for each newspaper up to two ounces one penny, two to four ounces three half-pence, each additional two ounces one half-penny. To other places in British Empire for each newspaper up to two ounces one penny, two to four ounces three half-pence, each additional two ounces one half-penny. To United States of America for each newspaper three half-pence per four ounces or fraction thereof. To all other places three half-pence per two ounces or fraction thereof. The limit of weight allowed is 5 lbs. Newspapers which are not registered are charged at the same rates as other printed papers.

(iii) *Parcels.* Parcels may not exceed 11 lbs. in weight, 3 ft. 6 in. in length, or 6 feet in length and girth combined. The rate for the inland postage of parcels is sixpence up to 1 lb., and then threepence for every additional pound. For interstate, New Zealand, Fiji, and Papua the rate is eightpence up to 1 lb., and then sixpence per

lb., and for transmission to the United Kingdom the rate is one shilling and fourpence up to 1 lb., and sixpence for every additional pound. Various rates are charged for the conveyance of parcels to other parts of the world.

(iv) *Second Class Mail Matter (Packet).* The following articles are classed as second class mail matter, and are accepted for oversea destinations at the rates given (a table of charges for delivery within the Commonwealth is to be found on page 604):—Commercial Papers: For New Zealand (including islands annexed thereto) and Fiji, three half-pence per two ounces; for other places in British Empire, three half-pence per two ounces, with minimum of threepence; for all other places three half-pence per two ounces, with minimum of fourpence, maximum 5 lbs. Printed Papers: For places in British Empire, one penny per two ounces; for all other places, three half-pence per two ounces, maximum 5 lbs. Patterns and Samples: For New Zealand and islands annexed thereto and Fiji, three half-pence per two ounces, up to 1 lb.; for United Kingdom, three half-pence per two ounces up to 5 lbs.; for all other places in British Empire, three half-pence per two ounces up to 12 ounces; for all other places, three half-pence per two ounces with minimum of threepence up to twelve ounces. Merchandise:—For New Zealand and islands annexed thereto and Fiji, three half-pence per two ounces up to 1 lb.; for all other places parcel rates apply. Books: For New Zealand and islands annexed thereto, Fiji, New Hebrides, and Solomon Islands, one penny per four ounces; for all other places three half-pence per two ounces. Catalogues: Rates applicable Commonwealth only. Magazines: For New Zealand (including islands annexed thereto), Fiji, New Hebrides, and Solomon Islands, penny per four ounces; for all other places, penny per two ounces. Second class mail matter for transmission within the Commonwealth must not as a rule exceed 2 feet in length, 1 foot in breadth or depth; or, if in a roll, 2 ft. 6 in. in length.

7. Registered Letters, Packets, etc.—Under section 38 of the Post and Telegraph Act 1901, provision is made for the registration of any letter, packet, or newspaper upon payment of a fee of threepence, and any person who sends a registered article by post may obtain an acknowledgement of its due receipt by the person to whom it is addressed by paying an additional fee of threepence in advance at the time of registration.

Number of Registered Articles. The subjoined table shews the number of registered articles posted in each State, classified according to the places to which they were despatched for delivery, also the number of registered articles received in each State from beyond the Commonwealth during the year 1920–21:—

**REGISTERED ARTICLES POSTED IN EACH STATE AND RECEIVED FROM
BEYOND COMMONWEALTH, 1920–21.**

State.	Posted in each State for Delivery within that State.		Posted in each State for Delivery in other States.		Posted in each State for Delivery in Places outside the C'wealth.		Total Posted.		Received in each State from Places outside the C'wealth.	
	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.	Number (,000 omitted).	Per 1,000 of Population.
New South Wales ..	1,768	845	270	129	143	68	2,181	1,042	192	92
Victoria ..	1,307	855	221	145	77	50	1,605	1,050	127	82
Queensland ..	780	1,037	105	139	37	49	922	1,225	28	37
South Australia ..	415	839	77	155	17	34	509	1,028	26	51
Western Australia ..	408	1,232	40	121	27	82	475	1,435	33	101
Tasmania ..	232	1,092	41	194	4	20	277	1,306	9	42
Commonwealth ..	4,910	907	754	139	305	57	5,969	1,103	415	77

8. Aerial Mail Services.—Contracts have been entered into by the Commonwealth Government for the establishment and maintenance of mail services by aeroplane over certain approved routes within the Commonwealth under subsidy from Government funds allocated for the development of Civil Aviation. The contractors for these services must provide and reserve space sufficient to accommodate 100 lbs. of mail matter. All space other than that reserved for mails is to be at the disposal of the contractor, but the charges for the conveyance of passengers and goods must be on a scale approved by the Minister for Defence. The Postmaster-General has approved of the services being availed of for the conveyance of first-class mail matter, provided that only such matter be carried as is superscribed for transmission by aerial service, and bears in postage stamps a special fee at the rate of 3d. per $\frac{1}{2}$ ounce or portion thereof in the case of letters, and 3d. each in the case of letter cards and post cards, in addition to the ordinary rate of postage.

The Geraldton-Derby (W.A.) service was to have commenced on 5th December, 1921, but was suspended as the result of an accident on that date, and an interim service was substituted between Geraldton and Port Hedland from 21st February, 1922, until 6th April, 1922, when the full Geraldton-Derby service was brought into operation. A full service has been maintained since the last-mentioned date with approximately 100 per cent. efficiency, the volume of passenger traffic and mail matter carried shewing a steady increase. The other services have not yet been inaugurated.

Particulars of the services in respect of which contracts have been entered into are as follows :—

COMMONWEALTH AERIAL MAIL SERVICES 1922.

Description of Service.	Distance in Miles.	Frequency of Service.	Places between which Service maintained.	Term of Service and Subsidy.
1. Sydney (N.S.W.)—Adelaide (S.A.) —Larkin Aircraft Supply Co. Ltd., of Melbourne	760	Weekly each way	Sydney, Cootamundra, Narandera and Hay (N.S.W.), Mildura (V.), Adelaide (S.A.)	Twelve months from date not yet fixed. Subsidy, £17,500
2. Sydney (N.S.W.)—Brisbane (Qld.) —F. L. Roberts, of Brisbane	550	Weekly each way	Sydney, Newcastle, Kempsey, Grafton, and Ballina (N.S.W.) Brisbane (Qld.)	Twelve months from date not yet fixed Subsidy, £11,500
3. Charleville (Qld.)—Cloncurry (Qld.) Queensland and Northern Territory Aerial Services Ltd. of Longreach, Qld.	575	Weekly each way	Charleville, Tambo, Blackall, Longreach, Winton, and McKinlay (Qld.)	Twelve months from date not yet fixed Subsidy, £12,000
4. Geraldton (W.A.)—Derby (W.A.) —Western Australian Airways Ltd.	1,195	Weekly each way	Geraldton, Carnarvon, Onslow, Roebourne, Port Hedland, Broome, and Derby (W.A.)	Twelve months commencing 5th December, 1921. Subsidy, £25,000

9. Ocean Mail Services.—Regular steamship communication between Australia and Europe was established in 1852 by a service run by the Peninsular and Oriental Company between Singapore and Sydney, via King George's Sound, Adelaide, and Melbourne. This service was inaugurated in September, 1852, by the arrival at Melbourne of the *Chusan*, and was continued until 1854, when it was stopped in consequence of the Crimean War; in 1856 a line of steamers was again started, and the service was carried on by the Peninsular and Oriental Company, in conjunction with the Royal Mail Company, for some years.

(i) *Mail Route via San Francisco.* The service via the Red Sea did not at first give much satisfaction to the public, and was looked upon with a certain amount of disfavour in New South Wales and New Zealand. The effect was to stimulate the colonists to agitate for an improved service, and proposals were made for the establishment of a line of mail packets from Sydney to Panama via Wellington, by rail across the isthmus, and thence to Great Britain. The result was that in 1866 the line was started, and continued in operation until the end of 1868, when it was terminated through the failure of the company by which it had been carried out. The completion of the railway across the American continent in 1869, with its western terminus at San Francisco, opened up a new and agreeable route, and in that year a monthly service was inaugurated by the Union Steamship Company, in conjunction with the Pacific Steamship Company, from Sydney to San Francisco via Auckland. This service was subsidized to the extent of £37,000 per annum, of which New South Wales paid £25,750 and New Zealand £11,250, and was continued until November, 1890, when a new contract was entered into and the amount of the subsidy largely reduced, the amount of the contribution being based upon the weight of mail matter carried. Various extensions of the contract were made, but the last agreement made between the New Zealand Government and the Oceanic Steamship Company of San Francisco expired on the 10th November, 1906, and has not since been renewed. From that date mails were carried at Postal Union rates until the 12th April, 1907, when the service was discontinued. At present mails to and from Europe are carried by the Union Steamship Company, which receives a subsidy from the New Zealand Government, with a service twice in every nine weeks: and by the Oceanic Company, with a service twice in every nine weeks. Postal Union rates are charged in respect of Australian mails conveyed by the Union Company, and poundage rates in the case of the Oceanic Company.

(ii) *Route via Suez Canal.* The establishment of a mail route via America had the effect of stimulating the steamship owners who were engaged in the service via Suez, and from that time there was a marked improvement in the steamers, as well as in the punctuality and speed with which the mails were delivered. Almost since the inception of ocean steam services, the Peninsular and Oriental Company, and, at a little later date, the Orient Pacific Company, have carried mails to and from Australia. Postal matter was carried under contract with the Companies named until 31st January, 1905, the subsidy being £170,000 per annum, of which £98,000 was paid by the United Kingdom and £72,000 by the States of the Commonwealth in proportion to the population of the several States. The Imperial and Commonwealth Governments then entered into separate contracts with the P. and O. Company and the Orient Company respectively. The Commonwealth Government's agreement with the Orient Company (on behalf of themselves and the Pacific Steam Navigation Company) was made on 25th April, 1905, and provided for a fortnightly mail service between England and Australia for the period from 4th April, 1905, to 31st January, 1908, the subsidy being £120,000 per annum. A further agreement was entered into between the Commonwealth and the Orient and Pacific Companies on 20th December, 1907, under which the service was extended to Brisbane on payment by the Commonwealth of £4,880 per annum additional as from 1st January, 1907. The agreements were replaced by the 1907 agreement referred to in the next sub-section hereof. Mails were also conveyed to and from Australia by the P. and O. Steamers under the contract with the British Post Office at Postal Union Rates. This arrangement continued until July, 1917, after which date up to September, 1921, mails conveyed from Australia by P. and O. steamers were paid for at poundage rates. Postal Union rates are now payable. A fresh agreement was entered into in 1921 between the Commonwealth Government and the Orient Company. Since the year 1900, Fremantle has been the first and last port of call for European mail steamers, in lieu of Albany, the original port of call. The Peninsular and Oriental and Orient Steam Navigation Companies' steamers, before the outbreak of war in 1914, sailed alternately every week, both from London and Australia, conveying the outward and homeward mails. The Peninsular and Oriental Service was entirely suspended subsequent to July, 1917, as a result of the war, while a very limited service was carried on for a greater part of the time by the Orient line via the Cape route. The situation has improved since the termination of the War, and a regular fortnightly service outwards and homewards is now provided by the Peninsular and Oriental and Orient line steamers. Mails are also despatched by other vessels.

(a) *1907 Mail Contract.* On the 1st January, 1906, tenders were invited by the Commonwealth Postmaster-General for a fortnightly mail service between Adelaide and Brindisi, to alternate with a similar service to be provided by the Imperial Government, and a contract was entered into with Sir James Laing and Company Limited, providing for a service at an annual subsidy of £125,000. This contract, however, fell through, and new tenders were accordingly called for. On the 15th November, 1907, an agreement was entered into with the Orient Steam Navigation Company Limited providing for a fortnightly service for a period of ten years, commencing in February, 1910. The mail service was to be carried out by existing vessels belonging to the company and by five new mail ships, which had been specially built, and which were each over 12,000 tons gross registered tonnage and of not less than seventeen knots speed. An additional new vessel was to be added within eighteen months, and another within six years, from February, 1910, and the first of these—the *Orama*—entered into running during November, 1911. War conditions, however, delayed the addition of the later vessel to the mail fleet. The vessels were to call at Fremantle, Adelaide, Melbourne, Sydney, and Brisbane, and, during the months of February to May inclusive, at least six of them at Hobart. The voyage from Taranto to Adelaide was to be completed within twenty-six days, fourteen hours, and from Adelaide to Taranto within twenty-seven days, two hours, but the latter period might be exceeded by thirty-six hours during the prevalence of the south-west monsoon. The amount of the subsidy was fixed at £170,000 per annum; but, if the earnings of the company were decreased, or the expenses increased by reason of any Commonwealth shipping legislation passed subsequently to the date of the agreement, to the extent of not less than £5,000 a year, the contractors had the right to terminate the agreement unless the subsidy was increased. Insulated space of not less than 2,000 tons of forty cubic feet per ton was to be provided in each of the new vessels, and the freights were not to exceed one halfpenny per lb. for butter and sixty shillings per ton for fruit. These rates obtained until the beginning of the War when the control of space passed to the Imperial Government. White labour only was to be employed, and no discrimination was to be made between unionists and non-unionists. If before or during the sixth year of the period of the contract an accelerated service were provided by any competing line of mail ships, the contractors had, if so required by the Postmaster-General, to provide a service equal to the competing service, at an increased subsidy, to be determined by agreement or arbitration. With the expiration of the period in 1916, this clause in the agreement lapsed. The Commonwealth flag had to be flown on the mail ships, which the Commonwealth had the right to purchase at a valuation at any time. Within six months of the Postmaster-General establishing a permanent wireless telegraphy station at Rottnest Island, or at any point on the coast between Fremantle and Brisbane, the company was required to fit the mail ships with wireless telegraphy installations. The new service was inaugurated on the 11th February, 1910, but was interrupted by the War, and until the contract ended it was carried out as far as possible with the reduced number of steamers available. This contract expired on 17th September, 1921, the Company having given the necessary 24 months' notice of intention to terminate as provided by the agreement.

(b) *1921 Mail Contract.* On 27th April, 1921, a fresh contract was entered into between the Commonwealth and the Orient Company for a four-weekly service between Toulon or other approved port in Southern Europe and Fremantle. This contract provides that the mail steamers shall start from an approved port in the United Kingdom and call at Adelaide, Melbourne, Sydney, and Brisbane, while at least three of them are to call at Hobart during the period February to May inclusive. The service commenced on 20th September, 1921, and is being performed by the steamers remaining to the Orient Company after the war. The contract is terminable on twelve months' notice by either party to the agreement, and is based generally on the terms and conditions of the 1907 contract. The period of transit from Toulon to Fremantle is 632 hours, and from Fremantle to Toulon 644 hours. During the prevalence of the south-west monsoon the latter period is extended by 36 hours. The subsidy payable is £130,000. Refrigerated space similar to that provided for in the 1907 contract is to be provided in the four regular steamers employed in the service, but if necessary the contractors may, as under that contract, use one other steamer without refrigerated space. Instead of the charges for butter and fruit being fixed as in 1907 it is provided that the contractors shall not, without the approval

of the Postmaster-General, charge or receive for carriage of butter and fruit any higher rates of freight than the current ruling rates of freight charged or received (after deduction of all rebates allowed or allowable) for carriage of those articles on other lines of steamers regularly engaged in the trade between the Commonwealth ports of call and the port or ports of discharge of the mail ships. The contract is subject to the British Government arranging with the Peninsular and Oriental Company for a four-weekly service which will alternate with the Orient contract, and thus provide a regular fortnightly service between Australia and Great Britain. An arrangement of this nature has been made.

(c) *French and German Subsidised Mail Services.* Vessels belonging to the Messageries Maritimes and the Norddeutscher Lloyd, which were under contract respectively with the French and German Governments to convey mails monthly between Marseilles and New Caledonia and between Bremen and Sydney, via Genoa, also carried mails for the Commonwealth Government from Australia to Europe at Postal Union rates. The Messageries Maritimes service commenced in November, 1882; the amount of the annual subsidy granted by the French Government being £120,000. The vessels of this company were withdrawn from the Australian service during the war but are expected to resume running before the end of 1922. The first contract for the establishment and maintenance of a mail steamship line between Germany and Australia was made between the Imperial German Government and the Norddeutscher Lloyd in 1885, and the service was inaugurated in July, 1886, with the steamer *Salier*. The service afforded by German vessels was, of course, discontinued on the outbreak of hostilities in Europe in 1914.

(iii) *Route via Vancouver and Canadian-Pacific Railway.* During the year 1893 a direct monthly service was started between Sydney and Vancouver, in British Columbia, via Wellington in New Zealand, and thence to Liverpool via the Canadian-Pacific Railway, the New South Wales Government paying an annual subsidy of £10,000 for the maintenance of this service for a period of three years. In 1896 the agreement was renewed for a further period of three years, and in 1899 was again renewed for four years, subject to the same terms and conditions, except that the route was via Brisbane instead of Wellington. The contract was further extended, at an increased subsidy, from time to time until the 31st July, 1911, at a subsidy of £26,626 per annum, when it finally terminated, and Commonwealth mails for Canada are now forwarded from Sydney, via New Zealand, at poundage rates.

(iv) *Other Ocean Mail Services.* In addition to the mails via the Suez Canal, a number of other services, both regular and irregular, are maintained between the Commonwealth and various parts of the world, and also between the principal ports in the various States and a number of small ports in the less settled parts of the Commonwealth which are inaccessible by rail. The following statement gives a summary, in so far as returns are available, of all mail services maintained between the Commonwealth and other countries and between ports in the Commonwealth. The amounts of subsidies specified are the amounts payable per annum unless otherwise stated.

SUMMARY OF COMMONWEALTH SEA-BORNE MAIL SERVICES, 1922.

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
1. <i>To and from Europe, via Suez—</i> (a) Orient Steam Navigation Co.	Every four weeks	Brisbane, Sydney, Melbourne, Adelaide, Fremantle and London, via Suez	Subsidy, £130,000. Commenced 20th September, 1921. Terminable on twelve months' notice by either party
(b) Peninsular and Oriental S.N. Co. Ltd.	Every four weeks	Sydney, Melbourne, Adelaide, Fremantle, and London, via Suez	Postal Union rates

SUMMARY OF MAIL SERVICES—continued.

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
2. <i>To and from Europe, via Vancouver</i> — Union Steamship Co. ..	Every four weeks	Sydney and Vancouver, B.C., via Auckland, Fiji, Honolulu	Poundage rates
3. <i>To and from Europe, via San Francisco</i> — (a) Union Steamship Company	Twice in nine weeks	Sydney, Wellington, Raratonga, Tahiti, and San Francisco	Subsidised by New Zealand Govt. Mails from Aust. at Postal Union rates
(b) Oceanic Steamship Co. ..	"	Sydney, Pago Pago (Samoa), Honolulu, and San Francisco	Poundage rates
4. <i>To and from New Zealand</i> — (a) Conjointly by Union S.S. Co. and Huddart, Parker Ltd.	Weekly	Sydney and Wellington, Sydney and Auckland	" "
(b) Other steamers ..	Irregularly, when convenient	Sydney, Wellington, Auckland, Lyttelton, and other Ports	" "
5. <i>To and from Ports in New South Wales</i> — (I) NORTHERN PORTS— (a) North Coast S.N. Co.	Twice weekly	Sydney and Coff's Harbour, Clarence River, Byron Bay and Richmond River	" "
(b) " "	Fortnightly	Sydney and South Solitary Island	" "
(c) Langley Bros. ..	Weekly	Sydney and Coff's Harbour	" "
(II) SOUTH COAST PORTS— Illawarra and S. Coast S.N. Co.	Fortnightly	Sydney, Montague Island	" "
6. <i>To and from Northern Ports of Queensland</i> — (a) Australasian United Steam Navigation Co. Limited	Weekly	Gladstone, Mackay, Bowen, Townsville, Lucinda, Mourilyan, Cairns, Port Douglas, and Cooktown	Subsidised by agreement dated 6th Dec., 1920, for two years. Amount of subsidy, £22,500, exclusive of Port and Light dues
(b) John Burke and Sons ..	Ten trips a year	Brisbane, Townsville, Cairns, Cooktown, Thursday Island, Normanston and Burketown	Subsidised from 28th October, 1921. Amount of subsidy, £2,000 per annum
(c) Other steamers ..	Irregularly	Various ..	Poundage rates
7. <i>To and from Ports in South Australia</i> — (a) Coast Steamship Co. Ltd.	Weekly	Port Adelaide and Kingscote	Subsidised to 31st December, 1922. Amount of subsidy, (a) £900; (b) £400; (c) £500; (d) £400
(b) " "	Twice a week	Port Adelaide and Edithburgh	
(c) " "	"	Port Adelaide and Stansbury	
(d) " "	"	Port Adelaide and Port Vincent	
(e) Adelaide Steamship Co. ..	Weekly	Port Adelaide and Port Lincoln	Subsidised for three years from 1st January, 1920. Amount of subsidy, £3,000
(f) Adelaide Steam Tug Co. ..	As required	Port Pirie and Whyalla	Subsidised without agreement. Amount of subsidy, £120

* Carries also mails to Canada and the United States.

SUMMARY OF MAIL SERVICES—*continued.*

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
8. Western Australia—			
(I) TO AND FROM PORTS ON N.W. COAST—			
(a) State Steamship Service	Monthly ..	Fremantle and Derby ..	Subsidised by agreement dated 28th February, 1913, for three years. Later extended to a date three months after expiration of war. Subsequently extended for indefinite period. Amount of subsidy, £5,500
(b) " " "	Once each sixty days	Fremantle and Darwin..	
(c) West Australian S.N. Co.	About fortnightly	Fremantle and Singapore, via N.W. Ports	Poundage rates
(d) Ausn. United S. Navigation and State S.S. Co. and Melbourne S.S. Coy.	Irregularly, during the cattle season	Fremantle, Derby, and Wyndham	" "
(II) TO AND FROM PORTS ON S. COAST—			
(a) State Steamship Service	Fortnightly	Albany and Esperance..	Subsidised by agreement for three years, dating from 1st July, 1921. Amount of subsidy, £1,500
(b) " " "	Quarterly	Albany and Eucla, via intermediate ports	
9. Tasmania—			
(a) Tasmanian Pty. Ltd. Steamers	Three times a week summer; twice a week winter	Melbourne and Launceston	Subsidy, £30,000 per annum from 1st May, 1921, under contract for twelve months, and thereafter terminable on twelve months' notice by either party to the agreement
(b) " " "	Twice week	Melbourne and Burnie	
(c) Union S.S. Co. and Huddart Parker Ltd.	Irregular..	Sydney, Hobart, and Wellington	Poundage rates
(d) Union Steamship Co...	" ..	Sydney, Launceston, and Devonport	" "
(e) Shipping and Trading Agency Pty. Ltd.	" ..	Launceston ..	" "
(f) " " "	" ..	Melbourne, Burnie, etc.	" "
(g) Huon Channel and Peninsular Co.	Twice week	Hobart and Kelly's Point, via Pearson's Point	Subsidised by agreement dated 1st January, 1919, for three years. Amount of subsidy, £40 per annum
(h) C. A. Coghlan ..	Every two weeks	Launceston and Furneaux group of islands	Subsidised by agreement dated 1st January, 1919, for three years. Amount of subsidy, £800 per annum, of which £300 contributed by State Government, contract terminable by month's notice either side
(i) King Island Steamers Ltd.	Fortnightly	Launceston and King Island	Subsidised by agreement dated 1st January, 1919, for three years. Amount of subsidy, £300 per annum
10. To and from Northern Territory—			
(a) Burns, Philp and Co. . .	Monthly ..	To and from Adelaide and Sydney, via Queensland ports, extending to China and Japan	Poundage rates
(b) State Steamship Service of Western Australia	Once each sixty days	Fremantle and Darwin..	See Item 8 above

SUMMARY OF MAIL SERVICES—*continued.*

Description of Service.	Frequency of Service.	Ports between which Service is maintained.	Particulars regarding Subsidies.
11. To Eastern Ports—			
(a) Burns, Philp and Co...	Monthly ..	Sydney to Singapore, via Queensland Ports and Darwin	Subsidised by Commonwealth Govt. Mails at poundage rates
(b) China Navigation, Eastern and Ausn., and China Australian Line	About three times a month	Sydney to Hong Kong, Manila, etc., via Queensland Ports	Poundage rates
(c) Nippon Yusen Kaisha	Every four weeks	Sydney to Manila, China, and Japan, via Queensland Ports	Postal Union rates
(d) Royal Dutch Packet S.N. Co.	Monthly	Melbourne to Java, via Sydney and Queensland Ports	Poundage rates
(e) Various other steamers	About monthly	Sydney or Newcastle and ports in Borneo, Java, Sumatra, and Malay Peninsula	" "
(f) W.A.S.N. Co. ..	About fortnightly	W.A. Ports, Java, and Singapore	" "
12. South Africa—			
White Star, P. and O. Branch Service, and other Companies	Irregularly	Sydney to Durban and Capetown	" "
13. North America—			
(a) Various steamers ..	Irregularly	Sydney or Newcastle to San Francisco	" "
(b) " " ..	"	Sydney to Guaymas (Mexico)	" "
(c) Union S.S. Co. ..	Twice in nine weeks	Sydney, Wellington, Tahiti and San Francisco	" "
(d) " " ..	Every four weeks	Sydney, Auckland, Fiji, Honolulu, and Vancouver	" "
(e) Oceanic S.S. Co. ..	Twice in nine weeks	Sydney, Pago Pago, (Samoa), and San Francisco	" "
14. South America—			
(a) { Oceanic S.S. Co. } { Union S.S. Co. }	Twice a month	Sydney, via San Francisco to ports in Chile, Brazil, Peru, Uruguay, and Argentina	" "
(b) Various other steamers	Irregularly	Via Newcastle to various ports	" "
15. Pacific Islands—			
(a) Burns, Philp and Co. ..	Every two months	Sydney to Lord Howe and Norfolk Islands and New Hebrides	Subsidised by Commonwealth
(b) " " ..	Irregularly	Sydney to Nauru and Ocean Islands, Gilbert and Ellice Groups	" "
(c) " " ..	"	Sydney to Marshall Islands	" "
(d) " " ..	Every three weeks	Sydney to Papua and Rabaul	Subsidised by Commonwealth
(e) " " ..	"	Sydney to Rabaul ..	" "
(f) " " ..	"	Sydney to Solomon Islands	" "
16. New Caledonia and New Hebrides—			
(a) Messageries Maritimes	Monthly ..	Sydney and Noumea and to Vila (New Hebrides)	Postal Union rates
(b) Other steamers ..	About twice a month	Sydney and Noumea ..	Poundage rates
17. Fiji, Friendly Islands, and Samoa—			
(a) Union S.S. Co. ..	Every four weeks	Sydney and Suva ..	" "
(b) " " ..	"	Sydney, Suva, Tonga, and Samoa	" "
(c) A.U.S.N. Co. ..	"	Sydney and Suva ..	" "

10. **Amount of Mail Subsidies Paid.**—The following table shews the amounts of subsidies paid by the Commonwealth Postal Department for ocean and coastal mail services during the year ended 30th June, 1921 :—

MAIL SUBSIDIES.—OCEAN AND COASTAL SERVICES, 1920-21.

Service.	Orient S. N. Co.	Queens- land Ports.	South Australian Ports.	Western Australian Ports.	Tas- manian Ports.
	£	£	£	£	£
Annual subsidy	114,423	17,443	5,374	4,154	(a)7,670

(a) Including £300 paid by Tasmanian Government, and £15 paid by Trade and Customs Department.

During the year 1920-21 the amount paid by the Commonwealth for conveyance of mails at poundage rates by non-contract vessels was £42,526 ; by road services, £541,451 ; and by railway services, £256,056. The total expenditure in 1920-21 on the carriage of mails, as disclosed by the Profit and Loss Account, amounted to £1,100,198.

11. **Average and Fastest Time of Mails to and from London.**—Great progress has been made in regard to the means of postal communication with the United Kingdom and the continents of Europe and America. In 1857 there was an unsatisfactory ocean mail service, which nominally brought monthly mails, with news nearly sixty days old ; before the outbreak of the war there were three lines of modern ocean steamships, which brought the mails from the United Kingdom in about twenty-nine days to Adelaide, in addition to services by way of New Zealand, via San Francisco and Vancouver. Since the completion of the railway connecting Kalgoorlie, Western Australia, and Port Augusta, South Australia, in 1917, letters for Australia arriving by overseas vessels from the United Kingdom have been landed at Fremantle for despatch overland by rail to the Eastern States. In the new contracts entered into in 1921 Fremantle has been made the mail port in Australia. By landing at Fremantle instead of as formerly at Adelaide, a saving of approximately sixty-seven hours is effected. In consequence of the war in Europe, steamers belonging to the Orient S. N. Co. were diverted from the Suez Canal to the Cape route, but the Suez Canal route has since been reverted to. The steamers of the Peninsular and Oriental Co. have also resumed via the last-named route. A service equal to that of pre-war days is not yet available. A regular fortnightly service is assured, however, under the terms of contracts entered into between the Commonwealth Government and the Orient Steam Navigation Company and between the Imperial Government and the Peninsular and Oriental Company. Particulars of these contracts, which date from September, 1921, will be found on page 609 *ante*.

The subjoined table shews the average and the fastest times occupied in the conveyance of mails from London to Adelaide and vice versa during the year 1920-21.

AVERAGE AND FASTEST TIME OCCUPIED IN CONVEYANCE OF MAILS VIA SUEZ CANAL BETWEEN LONDON AND ADELAIDE, AND VICE VERSA, DURING 1920-21.

Service.	London to Adelaide.(a)				Adelaide to London.			
	Average Time.		Fastest Time.		Average Time.		Fastest Time.	
	Days. Hours.		Days. Hours.		Days. Hours.		Days. Hours.	
	Days.	Hours.	Days.	Hours.	Days.	Hours.	Days.	Hours.
Orient S. N. Co., via Suez ..	33	9	31	21	33	1	30	—
Peninsular and Oriental S.N. Co., via Suez	32	21	29	23	34	22	34	—

(a) Mails for eastern States now landed at Fremantle.

At present a mail leaving Perth by train for the Eastern States, say, at 9 p.m. on Monday, arrives at Adelaide at 7.50 p.m. on Thursday, at Melbourne 1.3 p.m. on Friday, at Sydney at 10.45 a.m. on Saturday, and at Brisbane at 6.40 p.m. on Monday.

The time over all between Perth and Brisbane is 165 hours 40 minutes, of which the stops at changing stations take 38 hours 32 minutes. The journey from Melbourne to Hobart occupies about 26 hours via Launceston, and about 32 hours direct.

The average and fastest times occupied in the conveyance of mails between London and Sydney via America during 1920-21 were :—

Service.	Average Time.		Fastest Time.	
	Days.	Hours.	Days.	Hours.
London to Sydney {	via Vancouver	44 21	40	—
	via San Francisco (Oceanic) ..	38 22	35	—
	via San Francisco and Wellington ..	49 —	49	—
Sydney to London {	via Vancouver	41 12	37	—
	via San Francisco (Oceanic) ..	38 2	36	—
	via Wellington and San Francisco ..	48 —	46	—

12. **Money Orders and Postal Notes.**—The issue of money orders and postal notes in the Commonwealth is regulated by sections 74 to 79 of the Post and Telegraph Act 1901. A money order may be issued for payment of sums up to £20 within the Commonwealth and not exceeding £40 (in some cases £30, £20, or £10) in places abroad. A postal note, which is payable only within the Commonwealth and in Papua, cannot be issued for a larger sum than twenty shillings. Money orders are sent direct from the Commonwealth to the United Kingdom, and to most of the British colonies and possessions, to the British Solomon Islands Protectorate and the Gilbert and Ellice Islands. Protectorate, to Italy, to Norway, and to the United States of America. Money orders, payable in Japan and China, are sent via Hong Kong; orders payable in other countries, with a few exceptions, are sent through the General Post Office in London, where new orders are issued and forwarded to the addresses of the payees, less twopence for each £1 or fraction of £1, with a minimum charge of fourpence. To secure the full amount of the original order being forwarded to the payee, this extra commission must be paid by the sender.

(i) *Rates of Commission on Money Orders.* The rates of commission chargeable for the issue of money orders are as follows :—

RATES OF COMMISSION, MONEY ORDERS.

Orders Payable in.	Rates of Commission.
Commonwealth of Australia	6d. for each £5 or fraction of £5.
New Zealand	3d. for each £1 or fraction of £1, with minimum of 6d.
Papua, Rabaul (New Guinea), Nauru, Fiji, New Caledonia	4d. for each £1 or fraction of £1, with minimum of 6d.
United Kingdom, Canada, Union of South Africa, India, Ceylon, Dutch East Indies, Egypt, Federated Malay States, Gilbert and Ellice Islands, Hong Kong, Italy, Mauritius, North Borneo, Norway, Solomon Islands, Straits Settlements, Tonga	4d. for each £1 or fraction of £1, with minimum of 9d.
United States of America (including Hawaii)	9d. for any amount up to £2 and 4d. for each additional £1 or fraction of £1.
Philippine Islands	(a) In the case of amounts not exceeding £1, 7d. for every 2s. or fraction thereof. (b) In the case of amounts exceeding £1, 6s. for each £1 and for any odd amount less than £1, 7d. for every 2s. or fraction thereof.

Remittances may also be made by telegraph to and from money order offices in the Commonwealth which are also telegraph or telephone offices, and to New Zealand. The charge for a telegraph money order is the cost of the telegram of advice in addition

to the ordinary commission. Where payment is to be made within the Commonwealth the remitter must also send a telegram advising the transmission of the money, which telegram must be produced by the payee when applying for payment. In the case of New Zealand a second telegram is not required, but an additional charge of sixpence is made by the Department to cover the cost of notifying the payee.

A telegraph money order service between the United Kingdom and Australia via the Pacific Cable was inaugurated on 31st July, 1921, by agreement between the London Postal Authorities, the Commonwealth Postal Department, and the Pacific Cable Board. Under the arrangement made a telegraph money order may be drawn by the United Kingdom on any money order office in Australia whether it is a telegraph or telephone office or not while a telegraph money order may be drawn by Australia on any place whatsoever in the United Kingdom. An order may not be issued for a sum in excess of the maximum for a single money order to and from the United Kingdom, viz., £40. Information concerning the system may be obtained from any money order office.

(ii) *Rates of Poundage on Postal Notes.* The values of the notes issued have been so arranged that any sum of shillings and sixpences up to £1 can be remitted by not more than two of these notes. The poundage or commission charged on notes of different denominations is as follows :—

POUNDAGE RATES, POSTAL NOTES.

Denomination of Note ..	6d. to 1s. 6d.	2s. to 4s. 6d.	5s.	7s. 6d.	10s. to 20s.
Poundage charged ..	$\frac{1}{2}$ d.	1d.	1 $\frac{1}{2}$ d.	2d.	3d.

(iii) *Value of Orders Issued and Paid and of Notes Sold.* The following table shews the total value of money orders issued and paid, and of postal notes sold in each State and in the Commonwealth during the year 1920-21, together with the total amount of commission on money orders and poundage on postal notes received by the Postal Department. The results throughout shew an improvement as compared with the corresponding figures for 1919-20.

VALUE OF MONEY ORDERS ISSUED AND PAID AND OF POSTAL NOTES SOLD, AND TOTAL AMOUNTS OF COMMISSION AND POUNDAGE RECEIVED IN EACH STATE DURING 1920-21.

State.	Value of Money Orders Issued.	Value of Money Orders Paid.	Net Money Order Commission Received.	Value of Postal Notes Sold.	Poundage Received on Postal Notes.
	£	£	£	£	£
New South Wales ..	5,829,758	5,897,458	42,966	1,563,224	30,259
Victoria ..	2,832,948	3,034,804	19,477	1,044,786	20,661
Queensland ..	2,240,198	1,905,676	16,121	473,071	9,188
South Australia ..	819,907	713,450	6,282	247,841	5,011
Western Australia ..	1,393,318	1,149,554	9,354	226,943	4,293
Tasmania ..	558,549	480,434	3,651	117,970	2,357
Commonwealth ..	13,674,678	13,181,376	97,851	3,673,835	71,769

13. *Number and Value of Money Orders and Postal Notes Issued and Paid.*—The following table shews the total number and value of money orders and postal notes issued and paid in the Commonwealth from 1915-16 to 1920-21. The payment of military allotments by money order was chiefly responsible for the increase in business recorded in 1915-16. Payment of military allotments by this method was discontinued in 1916-17.

NUMBER AND VALUE OF MONEY ORDERS AND POSTAL NOTES ISSUED AND PAID, 1915-16 TO 1920-21.

Year.	Money Orders.				Postal Notes.			
	Issued.		Paid.		Issued.		Paid.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
	No. (,000).	£ (,000).	No. (,000).	£ (,000).	No. (,000).	£ (,000).	No. (,000).	£ (,000).
1915-16 ..	(a)3,007	12,336	2,904	11,815	9,536	3,292	9,517	3,316
1916-17 ..	2,293	10,285	2,105	9,757	9,663	3,273	9,549	3,265
1917-18 ..	2,196	10,901	2,138	10,510	9,842	3,252	9,814	3,221
1918-19 ..	2,300	11,697	2,214	11,370	9,830	3,277	9,775	3,244
1919-20 ..	2,352	12,382	2,258	12,094	10,163	3,389	10,127	3,409
1920-21 ..	2,543	13,675	2,439	13,181	10,849	3,674	10,821	3,671

(a) Increases due to payment by money order of military allotments.

14. Classification of Money Orders Issued and Paid.—The following table shews the number and value of money orders issued in each State during the year 1920-21, classified according to the country where payable :—

MONEY ORDERS ISSUED IN EACH STATE, CLASSIFIED ACCORDING TO COUNTRY WHERE PAYABLE, 1920-21.

State in which Issued.	Where Payable.				Total.
	In the Commonwealth.	In New Zealand.	In the United K'dom.	In Other Countries.	
NUMBER.					
New South Wales	1,024,078	9,797	66,454	13,315	1,113,644
Victoria ..	415,478	5,091	40,074	12,611	473,254
Queensland..	403,453	1,646	25,423	7,060	437,582
South Australia ..	149,836	823	13,540	3,062	167,261
Western Australia ..	214,017	863	18,255	3,395	236,530
Tasmania ..	107,891	1,573	4,501	975	114,940
Commonwealth ..	2,314,753	19,793	168,247	40,418	2,543,211
VALUE.					
	£	£	£	£	£
New South Wales ..	5,414,761	45,731	248,631	120,635	5,829,758
Victoria ..	2,574,790	21,817	162,302	74,039	2,832,948
Queensland ..	2,060,394	7,844	97,153	74,807	2,240,198
South Australia ..	747,958	3,999	49,869	18,081	819,907
Western Australia ..	1,290,247	5,040	68,529	29,502	1,393,318
Tasmania ..	534,678	7,916	12,527	3,428	558,549
Commonwealth ..	12,622,828	92,347	639,011	320,492	13,674,678

The following table shews the number and value of money orders paid in each State during the year 1920-21, classified according to the country where issued :—

MONEY ORDERS PAID IN EACH STATE, CLASSIFIED ACCORDING TO COUNTRY OF ISSUE, 1920-21.

State in which Paid.	Where Issued.				Total.
	In the Commonwealth.	In New Zealand.	In the United K'dom.	In Other Countries.	
NUMBER.					
New South Wales ..	1,043,496	33,699	16,283	10,162	1,103,640
Victoria ..	479,079	19,315	9,951	5,301	513,646
Queensland..	366,308	2,855	5,156	2,020	376,339
South Australia ..	139,400	1,279	2,872	1,016	144,567
Western Australia ..	194,898	2,165	4,290	1,275	202,628
Tasmania ..	91,522	3,633	1,300	1,397	97,852
Commonwealth ..	2,314,703	62,946	39,852	21,171	2,438,672
VALUE.					
	£	£	£	£	£
New South Wales ..	5,602,979	154,233	79,664	60,582	5,897,458
Victoria ..	2,888,800	72,299	44,596	29,109	3,034,804
Queensland..	1,861,497	12,435	23,430	8,314	1,905,676
South Australia ..	689,796	5,812	11,975	5,867	713,450
Western Australia ..	1,115,215	7,204	19,409	7,726	1,149,554
Tasmania ..	455,939	12,234	5,758	6,503	480,434
Commonwealth ..	12,614,226	264,217	184,832	118,101	13,181,376

In the above tables money orders payable or issued in foreign countries, which have been sent from or to the Commonwealth through the General Post Office at London, are included in those payable or issued in the United Kingdom.

15. Classification of Postal Notes Paid.—The subjoined table shews the number and value of postal notes paid during the year 1920-21 in each State and in the Commonwealth, classified according to the State in which they were issued.

Particulars regarding the total number and value of postal notes issued and paid in each of the last six years are given in sub-section 13 hereof.

NUMBER AND VALUE OF POSTAL NOTES PAID, CLASSIFIED ACCORDING TO STATE OF ISSUE, 1920-21.

Particulars.	Postal Notes Paid in—						
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
NUMBER.							
Issued in same State ..	3,129,963	2,198,170	1,098,377	528,588	512,845	280,514	7,748,457
Issued in other States ..	367,086	330,274	236,130	58,818	27,951	2,052,269	3,072,528
Total ..	3,497,049	2,528,444	1,334,507	587,406	540,796	2,332,783	10,820,985

NUMBER AND VALUE OF POSTAL NOTES PAID, CLASSIFIED ACCORDING TO STATE OF ISSUE, 1920-21—*continued.*

Particulars.	Postal Notes Paid in—						
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
VALUE.							
	£	£	£	£	£	£	£
Issued in same State ..	1,210,980	777,707	383,029	176,674	198,336	92,287	2,842,013
Issued in other States ..	138,142	125,800	62,362	23,346	11,335	467,628	828,613
Total ..	1,349,122	903,507	448,391	200,020	209,671	559,915	3,670,626

16. **Value Payable Parcel and Letter Post.**—This is a system under which the Postal Department undertakes to deliver registered articles sent by parcel post within the Commonwealth, or between Papua and the Commonwealth, to recover from the addressee on delivery a specified sum of money fixed by the sender, and to remit the sum to the sender by money order, for which the usual commission is charged. The object of the system is to meet the requirements of persons who wish to pay at the time of receipt for articles sent to them, and also to meet the requirements of traders and others who do not wish their goods to be delivered except on payment. In addition to the ordinary postage, commission on the value of the articles transmitted at the rate of twopence on sums not exceeding ten shillings, and one penny for each additional five shillings or part thereof, must be prepaid by postage stamps affixed to the articles, distinct from the postage, and marked "commission." The registration fee (threepence) and the proper postage must also be prepaid. If the addressee refuse delivery, the parcel is returned to the sender free of charge. Any article that can be sent by parcel post may be transmitted as a value-payable parcel. Letters may also be sent as value-payable parcels, if prepaid at the letter rate of postage and handed to the parcels clerk, in the same manner as in the case of parcels. The subjoined statement gives particulars of the number and value of parcels sent through the Value Payable Post in each State during the years 1915-16 to 1920-21. From these figures it will be seen that the number of parcels forwarded in Queensland is in excess of the combined transactions of all the other States, chiefly owing to the fact that the system has been established in that State for some years, but was only extended to the whole Commonwealth with the advent of Federal control of the post office. The system has also found favour for a number of years in Western Australia, and continues to make marked progress in New South Wales, but the amount of business transacted in Victoria, South Australia, and Tasmania remains negligible.

VALUE PAYABLE PARCELS POST.—NUMBER POSTED, VALUE COLLECTED, AND REVENUE, 1915 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
NUMBER OF PARCELS POSTED.							
	No.	No.	No.	No.	No.	No.	No.
1915-16 ..	13,979	1,395	45,467	206	22,108	35	83,190
1916-17 ..	16,794	1,530	53,585	318	22,427	28	94,682
1917-18 ..	21,962	1,204	63,523	473	23,421	37	110,620
1918-19 ..	28,544	1,579	68,601	588	24,211	22	123,545
1919-20 ..	38,713	2,134	94,733	666	29,628	76	165,950
1920-21 ..	53,829	3,192	120,045	689	36,125	155	214,035

VALUE PAYABLE PARCELS POST.—NUMBER POSTED, VALUE COLLECTED,
AND REVENUE, 1915-16 TO 1920-21—*continued*.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
VALUE COLLECTED.							
	£	£	£	£	£	£	£
1915-16	20,214	2,095	50,917	451	35,239	61	108,977
1916-17	24,268	2,704	74,418	463	35,496	56	137,405
1917-18	37,813	2,310	88,388	1,089	37,155	97	166,852
1918-19	54,876	3,003	98,882	1,492	38,244	72	196,569
1919-20	85,055	3,804	137,976	2,555	46,964	336	276,690
1920-21	124,502	6,105	177,662	2,027	57,170	711	368,177

REVENUE, INCLUDING POSTAGE, COMMISSION ON VALUE, REGISTRATION AND MONEY
ORDER COMMISSION.

	£	£	£	£	£	£	£
1915-16	1,715	183	5,793	33	3,022	3	10,749
1916-17	2,154	190	6,779	39	3,060	4	12,226
1917-18	3,338	153	8,839	70	3,165	5	15,570
1918-19	3,917	223	9,637	82	3,275	4	17,138
1919-20	5,435	331	13,076	106	4,000	15	22,963
1920-21	8,502	446	16,102	103	4,966	32	30,151

In 1905, the first year for which complete figures for the Commonwealth are available, the number of value payable parcels posted was 24,920, of an aggregate value of £34,990. For 1920-21 the corresponding figures were 214,035 and £368,177, an increase in number of 189,115 and in value of £333,187. The average value collected on parcels in 1905 was £1 8s., and in 1920-21 £1 14s. 5d. The average value collected in each of the States for the six years 1915-16 to 1920-21 was New South Wales £1 19s. 11d., Victoria £1 16s. 3d., Queensland £1 8s. 2d., South Australia £2 14s. 11d., Western Australia £1 11s. 8d., Tasmania £3 15s. 6d., and for the Commonwealth £1 11s. 8d.

17. **Agricultural Produce Parcels Post.**—On the 1st July, 1914, the Postal Department, acting in conjunction with the Railway Department, inaugurated a system under which parcels of agricultural produce, fish, cut flowers, etc., might be transmitted at cheap rates from places in the country to persons living within six miles of the General Post Office, Melbourne. The service was introduced, by way of experiment, into the State of Victoria only, but as a loss of £3,000 per annum was incurred, the service has been discontinued.

18. **Transactions of the Dead Letter Office.**—Under sections 45 to 53 of the Post and Telegraph Act 1901, the Postmaster-General may cause to be opened all unclaimed and undelivered postal articles originally posted within the Commonwealth which have been returned from the places to which they were forwarded. Every unclaimed letter and postal article must be kept for the prescribed period at the office to which it has been transmitted for delivery, and must then be sent to the General Post Office. Letters and packets originally posted elsewhere than in the Commonwealth are returned to the proper authorities in the country in which they were so posted, or if originally posted in the Commonwealth are returned to the General Post Office in the State where posted; but unclaimed or undelivered newspapers may be forthwith sold, destroyed, or used for any public purpose. Opened postal articles not containing anything of value are returned to the writer or sender if his name and address can be ascertained, but may otherwise be destroyed forthwith. As regards an opened letter or packet containing valuable or saleable enclosures, a list and memorandum of the contents are kept, and a notice is sent to the person to whom the letter or packet is addressed if he be known, or otherwise to the writer or sender thereof if he be known. Upon

application within three months of the date of such notice the letter or packet may be claimed by the addressee, or, failing him, by the writer or sender. If unclaimed within three months, the letter and contents may be destroyed or sold, and the proceeds paid into the Consolidated Revenue Fund. The following table shews the total number of letters, postcards and lettercards, and packets and circulars, including Inland, Inter-State, and International, dealt with by the Dead Letter Offices in the several States of the Commonwealth in 1920-21, and the methods adopted in their disposal.

TRANSACTIONS OF DEAD LETTER OFFICES IN THE COMMONWEALTH, 1920-21.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
LETTERS, POSTCARDS, AND LETTERCARDS.							
Returned direct to writers or delivered	630,618	410,771	242,678	106,209	114,537	69,324	1,574,137
Destroyed in accordance with Act	86,336	52,497	20,298	15,029	11,603	5,754	191,517
Returned to other States or Countries as unclaimed	144,406	67,411	41,317	22,937	26,874	13,026	315,971
Total	861,360	530,679	304,293	144,175	153,014	88,104	2,081,625

PACKETS AND CIRCULARS.							
Returned direct to writers or delivered	699,690	165,238	69,740	29,713	24,885	4,806	994,072
Destroyed in accordance with Act	130,849	230,166	12,439	45,115	3,220	330	422,119
Returned to other States or Countries as unclaimed	5,978	4,687	35,924	18,456	4,385	6,904	76,334
Total	836,517	400,091	118,103	93,284	32,490*	12,040	1,492,525
Grand total (letters, packets, etc.)	1,697,877	930,770	422,396	237,459	185,504	100,144	3,574,150

19. Post Offices and Receiving Offices and Employees.—The following tables shew the numbers of post and receiving offices and the corresponding numbers of employees in each State and in the Commonwealth from 1915-16 to 1920-21 inclusive :—

NUMBER OF POST AND RECEIVING OFFICES AT 30th JUNE, 1916 TO 1921.

State.	1916.		1917.		1918.		1919.		1920.		1921.	
	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.	Post Offices.	Receiving Offices.
New South Wales	2,074	566	2,040	548	2,031	548	2,037	562	2,034	559	2,031	578
Victoria ..	1,787	872	1,782	856	1,726	878	1,715	854	1,707	829	1,712	864
Queensland ..	642	689	643	685	643	659	640	643	645	627	658	604
South Australia	739	105	705	125	670	143	666	125	674	118	670	127
Western Australia	431	182	412	206	407	212	402	201	402	209	405	222
Tasmania ..	409	69	398	83	396	85	406	83	405	83	409	89
Commonwealth	6,082	2,483	5,980	2,503	5,873	2,525	5,866	2,468	5,867	2,425	5,885	2,484

**NUMBER OF EMPLOYEES AND NUMBER OF MAIL CONTRACTORS,
AT 30th JUNE, 1916 TO 1921.**

State.	1916.		1917.		1918.		1919.		1920.		1921.	
	Employees.	Mail Contractors.	Employees.	Mail Contractors.	Employees.	Mail Contractors.	Employees.	Mail Contractors.	Employees.	Mail Contractors.	Employees.	Mail Contractors.
Central Office ..	83	..	91	..	92	..	84	..	83	..	(a) 139	..
New South Wales	12,193	1,899	11,821	1,915	11,684	1,972	11,732	1,964	11,334	1,912	11,661	2,046
Victoria ..	8,567	1,152	8,320	1,137	8,249	1,105	8,499	1,112	7,962	1,089	8,117	1,091
Queensland ..	4,441	806	4,375	801	4,477	794	4,289	787	4,788	723	4,728	750
South Australia	2,683	348	2,765	352	2,737	368	2,768	350	2,679	427	2,826	439
Western Australia	2,584	284	2,451	270	2,462	271	2,258	264	2,110	286	2,111	302
Tasmania ..	1,204	224	1,214	221	1,212	250	1,173	227	1,156	227	1,220	223
Commonwealth	31,755	4,713	31,027	4,705	30,913	4,760	30,803	4,704	30,102	4,664	30,810	4,851

(a) Includes radio staff.

20. **Gross Revenue of Postal Department.**—The following table shews the gross revenue of the Postal Department for the years ended 30th June, 1914 to 1921 inclusive, under three heads, viz., the Postal, the Telegraph, and the Telephone branches. In the Postal branch is included the revenue derived from money-order commissions, poundage on postal notes, private boxes and bags, and miscellaneous sources. The following figures and also those for expenditure are supplied by the Treasury and represent the actual collections and payments for the periods mentioned :—

GROSS REVENUE OF POSTAL DEPARTMENT, 1913-14 TO 1920-21.

Year ended 30th June—		Postal Branch.	Telegraph Branch.	Telephone Branch.	Total.
		£	£	£	£
1914 .. ..	..	2,680,944	834,316	996,047	4,511,307
1915 .. ..	..	2,616,887	878,238	1,099,417	4,594,542
1916 .. ..	..	2,938,837	893,904	1,220,855	5,053,596
1917 .. ..	..	2,997,714	950,842	1,549,961	5,498,517
1918 .. ..	..	2,998,724	1,032,317	1,731,149	5,762,190
1919 .. ..	..	3,129,932	1,103,664	1,876,929	6,110,525
1920 .. ..	..	3,310,778	1,274,527	2,159,450	6,744,755
1921 .. ..	..	4,574,618	(a) 1,381,974	2,431,981	8,388,573

(a) Includes £12,052 radio receipts.

The following table gives an analysis of the actual collections of the Postal Department in each State and in the Commonwealth during the year ended 30th June, 1921 :—

ANALYSIS OF GROSS REVENUE OF POSTAL DEPARTMENT, 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
Postage	1,611,992	1,190,299	603,386	349,927	233,866	153,311	4,142,781
Telegraphs (ordinary) ..	496,719	274,540	221,415	209,900	121,253	46,095	1,369,922
Telegraphs (radio) ..	627	8,880	825	307	948	465	12,052
Telephones	959,849	687,319	336,867	233,848	141,011	73,087	2,431,981
Money order commission ..	72,113	39,428	26,547	11,293	13,647	6,229	169,257
Poundage on postal notes ..							
Private boxes and bags	14,868	7,768	8,213	4,721	2,752	1,724	40,046
Miscellaneous	75,766	64,485	30,013	15,069	28,405	8,796	222,534
Total	3,231,934	2,272,719	1,227,266	825,065	541,882	289,707	8,388,573

21. **Expenditure in respect of the Postal Department.**—The subjoined table represents the actual payments made as shewn by records kept for Treasury purposes in respect of the Postal Department in the Commonwealth for each of the years ended 30th June, 1916 to 1921 inclusive. The figures given include certain items of expenditure, such as rent, repairs and maintenance of buildings, fittings and furniture, sanitation, water supply, new buildings and additions and interest on transferred properties.

**TOTAL EXPENDITURE IN RESPECT OF POSTAL DEPARTMENT,
1915-16 TO 1920-21.**

Year	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Expenditure	6,366,431	5,879,768	5,677,783	5,826,049	6,649,432	8,268,725

The following table shews, as far as possible, the distribution of expenditure on various items in each State during the year ended 30th June, 1921. The table is not to be regarded as a statement of the working expenses of the Department, since items relating to new works, interest, etc., are included therein.

DISTRIBUTION OF EXPENDITURE OF POSTAL DEPARTMENT, 1920-21.

Particulars.	Central Office.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£	£
Salaries and contingencies—								
Salaries ..	(b)51,301	1,579,088	1,033,176	515,581	348,732	349,659	130,405	4,007,942
Conveyance of mails ..	..	367,997	166,259	180,998	71,543	57,550	40,904	885,251
Contingencies ..	(b)32,544	682,231	412,034	325,598	179,093	118,788	70,414	1,820,702
Cables ..	3,718	..	..	..	..	..	..	3,718
Ocean mails ..	114,423	..	..	..	..	..	..	114,423
Miscellaneous ..	3,772	15,954	13,392	3,391	3,525	1,268	2,590	43,892
Pensions and retiring allowances ..	..	30,699	38,320	918	..	5,120	..	75,057
Rent, repairs, maintenance ..	(b)780	36,014	18,794	15,380	7,059	6,990	1,807	86,824
Supervision of works ..	..	186	138	67	43	30	21	485
Proportion of Audit Office expenses ..	..	3,140	2,326	1,130	735	513	388	8,182
Unforeseen expenditure ..	..	19	9	4	..	7	4	43
New works—								
Telegraph and telephone ..	(b)16,081	429,391	212,599	122,555	71,997	36,394	23,996	913,013
New buildings, etc. ..	..	860	7,973	2,528	9,844	22,712	552	50,469
Interest on transferred properties ..	..	81,652	45,964	32,308	..	19,099	7,366	186,389
Other ..	..	..	..	..	..	..	..	(a)72,335
Total ..	222,619	3,233,231	1,950,984	1,200,458	692,571	618,130	278,397	8,268,725

(a) Particulars of apportionment to each State not available.

(b) Includes radio expenditure.

22. **Balance Sheet of the Postmaster-General's Department.**—The first complete balance sheet and profit and loss account of the Postmaster-General's Department was presented in November, 1913, for the year ending 30th June, 1913. As will be seen from the figures of the General Profit and Loss Account hereunder, the year 1920-21, after providing for depreciation, pension and retiring allowances, closed with a surplus of £1,786,951. From this amount £643,183, interest on capital, was deducted, leaving a profit of £1,143,768, or £655,814 more than that of 1919-20.

Tables showing the results of the working of the Department for the years 1916-17 to 1920-21 are appended :—

**GENERAL PROFIT AND LOSS ACCOUNT, POSTMASTER-GENERAL'S DEPARTMENT,
1916-17 TO 1920-21.**

Items.	1916-17.(a)	1917-18.(a)	1918-19.(a)	1919-20.(a)	1920-21.
	£	£	£	£	£
Total earnings	5,515,769	5,773,954	6,158,571	6,732,096	8,511,494
Total working expenses ..	5,134,533	4,809,571	5,043,891	5,633,752	6,724,543
Surplus	381,236	964,383	1,114,680	1,098,344	1,786,951
Interest on capital	558,382	577,001	590,035	610,390	643,183
Total surplus (+) or deficit (-)	(-)177,146	(+)387,382	(+)524,645	(+)487,954	+1,143,768

(a) Excluding Wireless Telegraphy Branch, which was transferred to the Department of the Navy as from 1st July, 1915.

In contrast with the results obtained in previous years a profit of £387,382, the first in the history of the Department, was earned in 1917-18. This satisfactory condition of affairs has been more than maintained in succeeding years, the profit for 1920-21 amounting to £1,143,768.

The following tables shew the yearly results of the working of the various branches, and the Department as a whole, from 1913-14 to 1920-21, and in each State from 1917-8 to 1920-21 :—

**PROFIT OR LOSS OF THE VARIOUS BRANCHES OF THE POSTAL DEPARTMENT,
1913-14 TO 1920-21.**

Year ended 30th June—	Postal.		Telegraph.		Telephone.		All Branches.	
	Loss.	Profit.	Loss.	Profit.	Loss.	Profit.	Loss.	Profit.
	£	£	£	£	£	£	£	£
1914 .. ..	..	24,155	151,446	..	296,424	..	501,457	..
1915	81,296	..	114,555	..	390,704	..	662,922	..
1916 .. ..	..	42,131	86,426	..	271,695	..	315,990	..
1917	168,896	..	25,484	..	..	17,234	177,146	..
1918 .. ..	..	237,421	..	28,116	..	121,845	..	387,382
1919 .. ..	..	239,337	..	63,133	..	222,175	..	524,645
1920 .. ..	..	81,217	..	95,636	..	311,101	..	487,954
1921 .. ..	..	929,605	8,312	..	..	222,475	..	1,143,768

(a) Includes wireless £35,656.

(b) Includes wireless £43,167.

In the period of eight years covered by the foregoing table it will be observed that the operations of the Postal branch closed with a profit in each of the years 1916, 1918, 1919, 1920, and 1921, the Telephone branch in 1917, 1918, 1919, 1920, and 1921, and the Telegraph branch in 1918, 1919, and 1920.

**PROFIT OR LOSS OF THE POSTAL DEPARTMENT IN THE VARIOUS STATES,
1917-18 TO 1920-21.**

State.	1917-18.		1918-19.		1919-20.		1920-21.	
	Loss.	Profit.	Loss.	Profit.	Loss.	Profit.	Loss.	Profit.
	£	£	£	£	£	£	£	£
New South Wales ..	..	140,354	..	155,159	..	95,285	..	334,395
Victoria ..	..	177,805	..	254,013	..	259,507	..	516,860
Queensland ..	..	68,929	..	60,103	..	61,311	..	143,844
South Australia ..	..	104,868	..	132,772	..	151,984	..	189,936
Western Australia	102,409	..	81,460	..	81,391	..	62,397	..
Tasmania ..	2,165	..	..	4,058	..	1,258	..	21,130
Commonwealth	..	387,382	..	524,645	..	487,954	..	1,143,768

23. Royal Commission on Postal Services.—In 1908 a Royal Commission was appointed to report on the Postal, Telegraphic, and Telephonic services of the Commonwealth. An account of the work done by the Commission will be found in earlier issues of the Year Book. (See Year Book No. 6, p. 766.)

§ 2. Telegraphs.

1. First Lines Constructed.—The electric telegraph was first introduced into Australia for use by the public in the year 1854, when a line from Melbourne to Williamstown was opened. The first line in South Australia, from Adelaide to Port Adelaide, was opened in 1856, while the first line in New South Wales was brought into operation in 1858, when the line from Sydney to Liverpool, 22 miles in length, was opened. In Tasmania the first telegraph line was completed in 1857, while in the following year communication was established between Sydney, Melbourne, and Adelaide. The first lines to be constructed in Queensland were those between Brisbane and Warwick, and Brisbane and Lytton, distances of 169 and 12 miles respectively. These lines were working in 1861. In Western Australia the first telegraph constructed was from Perth to Fremantle, a distance of 12 miles, which was brought into use in 1869, and in the same year the cable joining Tasmania with the continent of Australia was completed.

2. Development of Services.—During the period from 1871 to 1881 great progress was made throughout Australia in the way of telegraphic construction, over 14,000 miles of line, exclusive of railway telegraph lines, being opened for use, making the total length of the line open at the end of the year 1881, 25,470 miles. At the present time the systems of telegraph lines throughout Australia are well developed. The longest line extends from Thursday Island, in Torres Strait, by submarine cable to Paterson, on the mainland of Cape York Peninsula; from Paterson the line runs in a southerly direction as far as Brisbane, where it joins the main interstate line to Sydney, Melbourne, and Adelaide; from Adelaide it runs to Port Augusta, then on to Port Lincoln, on Eyre's Peninsula, and thence to Eucla, on the Western Australia boundary; from Eucla the line extends along the coast of the Great Australian Bight to Albany, and thence it runs adjacent to the west coast of Western Australia as far as Onslow, via Perth, Geraldton, and Carnarvon. From Onslow connexion extends to Broome, in Roebuck Bay. From Roebuck Bay the line crosses the Kimberley district in an easterly direction, and then runs north as far as the terminus at Wyndham. In Queensland a line runs to Burketown, near the coast of the Gulf of Carpentaria, via Normanton; another line extends to Cloncurry and Urundangi, in the extreme west of the State. Branch lines extend to all important coastal and inland towns, while considerable networks of lines converge from the country districts towards the centres of population. From Adelaide the transcontinental line runs in a northerly direction to Darwin, from which place communication is provided with Europe by submarine cable by way of Batavia, Singapore, and Madras. In Western Australia a line runs from Eucla to the Coolgardie gold-fields via Balladonia and Dundas, and from Coolgardie communication is provided with Perth, and with Mount Sir Samuel in the East Murchison district.

3. Number of Telegraph Offices and Length of Lines and Wire Open.—The following table shews the number of telegraph offices and the length of telegraph lines and of telegraph wire available for use in the Commonwealth from 1917 to 1921 inclusive. It will be noticed that 145,529 miles of wire are available for telegraph purposes, of which 82,234 miles are also used for telephone purposes.

NUMBER OF TELEGRAPH OFFICES AND LENGTH OF LINE AVAILABLE IN THE COMMONWEALTH AT 30th JUNE, 1917 TO 1921.

Particulars.	1917.	1918.	1919.	1920.	1921.
Number of offices	6,189	6,196	6,219	6,251	6,366
Length of wire (miles)—					
Telegraph purposes only	62,804	62,981	63,148	63,458	63,295
Telegraph and telephone purposes ..	73,663	74,682	78,004	79,930	82,234
Length of line (miles)—					
Conductors in Morse cable	3,232	2,218	2,153	2,152	2,133
Conductors in submarine cable	1,680	1,708	1,705	1,736	1,851
Pole routes (miles)	59,706	59,849	60,275	60,693	60,563

The following table gives corresponding particulars for each State for the year 1920-21 :—

NUMBER OF TELEGRAPH OFFICES, LENGTH OF LINE AND WIRE, IN EACH STATE, AT 30th JUNE, 1921.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Number of offices	2,252	1,703	842	551	552	466	6,366
Length of wire (miles)—							
Telegraph purposes only	21,535	6,192	14,810	11,615	9,007	136	63,295
Telegraph and telephone purposes	30,445	17,991	14,402	6,455	7,579	5,362	82,234
Length of line (miles)—							
Conductors in Morse cable	707	1,057	334	..	21	14	2,133
Conductors in submarine cable	1,224	439	65	68	5	50	1,851
Pole routes (miles)	24,051	7,672	10,924	6,828	8,318	2,770	60,563

4. Revenue and Expenditure.—Particulars as to the revenue from the telegraph systems for the years 1914 to 1921 are given on page 622.

5. Number of Telegrams Despatched.—The following table shews the total number of telegrams despatched to destinations within the Commonwealth in each of the years 1915-16 to 1920-21 inclusive :—

NUMBER OF TELEGRAMS DESPATCHED, 1915 TO 1921.

Year ..	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Number (a)	13,939,424	14,088,606	14,633,859	15,461,034	17,934,998	16,723,111

(a) Including interstate cablegrams.

The following table shews the number of telegrams despatched in each State in 1920-21 for delivery in that State, and the number despatched in each State for delivery in other States, and also the total number of telegrams—exclusive of cablegrams for places outside the Commonwealth—despatched in each State:—

NUMBER OF TELEGRAMS DESPATCHED IN EACH STATE, 1920-21.

State, etc.	..	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
Inland ..	..	4,512,843	2,703,781	2,149,007	1,047,729	1,458,955	357,632	12,229,947
Interstate (a)	..	1,393,400	1,240,840	714,955	513,925	389,687	240,357	4,493,164
Total	..	5,906,243	3,944,621	2,863,962	1,561,654	1,848,642	597,989	16,723,111

(a) Including interstate cablegrams.

6. Rates for Transmission of Telegrams.—The original rates for the transmission of telegrams within the Commonwealth were fixed by section 7 of the Post and Telegraph Rates Act 1902, and came into force on the 1st November, 1902. Under this Act charges are made for telegrams according to whether they are “ordinary” or “press” telegrams. “Press” telegrams are defined to mean those the text of which consists of political, commercial, etc., information, and of news intended for publication in a newspaper. The telegram must be sent by an authorised correspondent, and must be addressed to a registered newspaper or recognised news agency. The subjoined tables shew the scales of charges imposed by an amending Act which came into operation on 1st October, 1920:—

SCALE OF CHARGES FOR ORDINARY TELEGRAMS.

Particulars.	Town and Suburban, within Prescribed Limits, or within 15 miles from the Sending Station.	Other Places within the State, except Town and Suburban.	Interstate.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Including address and signature—			
Not exceeding 16 words	0 9	1 0	1 4
Each additional word	0 1	0 1	0 1

Double the foregoing rates are imposed for the transmission of telegrams on Sunday, Christmas Day, and Good Friday, and between the hours of 8 p.m. and 9 a.m., and for telegrams lodged for “urgent” transmission.

SCALE OF CHARGES FOR PRESS TELEGRAMS.

Particulars.	Within any State.	Interstate.	Relating to Parli- amentary, Executive, Departmental, and other Common- wealth Proceedings as may be prescribed.(a)
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Not exceeding 25 words	0 8	1 4	1 4
From 26 to 50 words	0 11	1 10	1 8
From 51 to 100 words	1 9	3 6	2 0
Every additional 50 words	0 8	1 4	0 8

(a) Within the Commonwealth.

7. **Letter-telegrams.**—Commencing in February, 1914, the Postal Department instituted a system of letter-telegrams between all telegraph offices which are open between 7 p.m. and midnight. The letter-telegrams are forwarded during the night by telegraph to the office of destination and are delivered as ordinary letters by the first letter delivery, or are despatched by mail to the address in the ordinary way. The object of the Department in introducing the system was to utilize profitably the unoccupied time of the staff, but it was found that ordinary business and revenue suffered through the extensive use of the system by the business community, consequently the concession has been limited to messages of a social, domestic or private nature. Letter-telegrams may be exchanged between any of the following offices: (a) offices which are open for the receipt of ordinary business between 7 p.m. and midnight, (b) offices which are open for ordinary or press business after 7 p.m. The rates charged throughout the Commonwealth are one shilling and threepence for the first 30 words, and one halfpenny for each additional word, double these rates being charged on Sundays. At the end of 1921 the service applied to 103 offices throughout the Commonwealth.

8. **Wireless Telegraphy.**—Prior to September, 1915, the Postmaster-General was, under the Wireless Telegraphy Act 1905, given the exclusive privilege of establishing and using stations and appliances for receiving and transmitting messages by wireless telegraphy within Australia, and an amendment of the Act in 1919 extended the Commonwealth's control to wireless telephony also. Licences for experimental work are granted by the Postmaster-General under the authority of the Act. Licences are now issued (a) in respect of wireless telegraphy installations on ships registered in Australia; (b) in respect of experimental work carried out by amateur investigators into radio-phenomena generally.

The administration of the Radio Service was under the control of the Navy Department from September, 1915, to 1st July, 1920, when it reverted to the Postal Department, although the actual transfer was not effected until 28th October, 1920. Upon the resumption of control by the Postal Department, immediate action was taken to extend the uses of wireless both for inland and trans-ocean public requirements. The regulations were amended to permit of any person obtaining a licence to erect and operate his own station in remote localities not served by land lines. Where such stations were erected to the Department's satisfaction the Department undertook to provide communication with the landline system, and in furtherance of this policy it was proposed to erect collecting stations at Powell's Creek, N.T., and Camooweal, Q., to work in conjunction with private stations. Experimental work has been undertaken in connexion with wireless telephone transmission between Tasmania and the mainland of Australia, and the results so far obtained have been very promising.

On 28th March, 1922, the Commonwealth Government entered into an agreement with Amalgamated Wireless (Australasia) Limited whereby the Company agreed to establish and maintain direct wireless communication between Australia and the United Kingdom and Canada, and to take over from the Commonwealth Government the existing Radio Stations under its control. Under the terms of the agreement the Company is called upon to increase its capital to 1,000,000 shares of £1 each and to allot to the Commonwealth Government 500,001 shares after the expiration of one month from the date of the agreement. In the event of any further increase of capital it must be so arranged that the Commonwealth will always retain a controlling interest in the Company. The Company is not to become a party to any trust or combine and is always to remain a British concern. It is also required to hand over the control of the stations to the Government in time of war or public danger if considered desirable. Seven directors are provided for as follows:—Three to be nominated by and to represent the Commonwealth Government; three to be elected by holders of shares other than those allotted to the Commonwealth Government; and one to be elected by a majority vote of the other six directors. If the six directors are equally divided the selection of the seventh director is to be referred to one arbitrator mutually selected, or failing mutual selection, to be determined by arbitration under the Victorian Arbitration Act 1915.

In particular the Company forthwith undertakes the following programme :—

- (a) To construct, maintain and operate in Australia the necessary stations and equipment for a direct commercial wireless service between Australia and the United Kingdom.
- (b) To provide and operate a system of feeder stations for wireless connexion between the main high-power stations and the capital cities of the States.
- (c) To equip and organize the feeder stations so as to provide communication with merchant ships round the coast of Australia.
- (d) To arrange that the rates to be charged for messages between Australia and the United Kingdom shall not exceed the following :—Full-rate messages, 2s. per word ; deferred messages, 1s. per word ; week-end messages, 6d. per word (minimum, 10s. per message) ; Government messages, 1s. per word ; press messages, 5d. per word ; deferred press messages, 3d. per word.
- (e) To arrange for the operation of suitable corresponding stations in the United Kingdom.
- (f) To provide the main trunk stations in Australia and the United Kingdom within two years from date of agreement.
- (g) To arrange within two years from the date of the agreement for the erection and operation of a station in Canada capable of commercial communication with the high-power station in Australia, and so equipped as to afford facilities for distributing traffic throughout North America.
- (h) To take over within one month from date of agreement existing Commonwealth Radio Stations, excepting those wholly under control of Defence Department, but including stations in Papua, Territory of New Guinea, and Flinders and King Islands, and also, if required, Willis Islets Station, and to operate and provide a service at least equal to that previously supplied.

For the purposes of the agreement, the commercial wireless service means a service capable of maintaining communication throughout 300 days of every year on a minimum basis of twenty words a minute each way for twelve hours per day.

In preparing the initial scheme for the construction of wireless stations in the Commonwealth, it was evident, viewing the insular position of Australia, that, for an effective system of radio-telegraphic communication to be given, not only must the service offered be continuous, but the distances separating the stations must to a great extent be governed by the normal working range of the vessels with which communication would have to be established. With this object in view the Commonwealth Government has constructed and erected stations at or near the following localities :—Port Moresby, Thursday Island, Cooktown, Townsville, Rockhampton, Brisbane, Sydney, Flinders Island, Melbourne, Hobart, King Island, Adelaide, Esperance, Perth, Geraldton, Broome, Wyndham, Darwin, Samarai and Misima (Louisiade Archipelago). In the Pacific the Commonwealth controls stations at Rabaul, Madang, Nauru, Kieta, Bita Paka, Morobe, Eitape, Manus, and Kaewieng ; all these being on former German territory now administered by Australia. The stations at Sydney, Perth, and Townsville are of a medium-power type. All the other stations are of low power, and constitute the internal scheme of inter and ship-to-shore communication. The following rates are applicable to radio-telegrams transmitted either way :—Between any telegraph office in Australia and Australian ships, 6d. per word, allocated as follows : Coast station 3d., ship station 2d., landline 1d. British and foreign ships, 11d. per word, allocated : Coast station 6d., ship station 4d., landline 1d. Between the Commonwealth and Port Moresby the rate is 6d. per word, and between the mainland and Flinders Island or King Island 2s. 8d. for sixteen words, 2d. each additional word.

Radio-telegraphic stations have been erected at Suva, Ocean Island, Tulagi, and Vila under the control of the High Commissioner of the Pacific, while the New Zealand Government has erected high-power stations at Awanui (Auckland), Awarua (Bluff), and Apia (Samoa), and low-power stations at Auckland, Chatham Islands, Raratonga (Cook Islands), and Wellington.

§ 3. Submarine Cables.

1. **First Cable Communication with the Old World.**—In earlier issues of the Year Book will be found a detailed account of the connection of Australia with the old world by means of submarine cables. (See No. 6, p. 770.)

2. **The Tasmania-Victoria Cables.**—A submarine cable joining Tasmania to the continent of Australia was opened for use in 1869, the total length being 170 miles. The line was owned by the Eastern Extension Telegraph Company, and was subsidised by the Tasmanian Government until the year 1909. On the 28th February, 1908, the Postmaster-General entered into an agreement with Messrs. Siemens Brothers and Company Ltd., of London, for the manufacture and laying of two submarine cables between Tasmania and Victoria. The new cables were taken over on the 24th March, 1909, and opened to the public on the 1st May, 1909, the day following the expiration of the agreement with the Eastern Extension Company. Their aggregate length is approximately 350 nautical miles of main cable, and 20 nautical miles each of intermediate and shore-end cable, making a total of 390 nautical miles. The contract price was £52,447.

3. **The Eastern Extension Company's Cables.**—In addition to the first Victoria-Tasmania cable and the original cable from Darwin (see Year Book No. 6, p. 770), the Eastern Extension Company has constructed several other cables connecting with various places in the Commonwealth. (a) In 1879 the original cable via Banjoewangie was duplicated, the States of New South Wales, Victoria, South Australia, Western Australia, and Tasmania having agreed to pay the above company a subsidy of £32,400 per annum for a period of twenty years, the amount to be divided between the States on a population basis. (b) In 1881 a cable was constructed connecting Broome, in Roebuck Bay, W.A., with Banjoewangie, and remained in operation until 1914, in which year it was taken up. (c) In July, 1899, the company offered to lay a cable direct to Great Britain via the Cape of Good Hope, and also offered reductions in the rates charged, if the States would agree to certain conditions giving the company the right of direct dealing with the public. The States of South Australia, Western Australia, and Tasmania accepted the terms offered, and New South Wales entered into the agreement in January, 1901. The cable was opened via Fremantle and Durban in October, 1901. (d) Another submarine cable from Fremantle to Adelaide forms an alternative line of communication between the eastern States and Western Australia. (e) There is an alternative route, partly belonging to the Eastern Extension Company and connecting the Port Darwin-Singapore cable with London, via Hong Kong, Shanghai, Possiet Bay (Pacific Russia), Libau (Russian Baltic), and Newbiggin (England). (f) In 1909 a cable was laid from Java to Cocos Island, thus affording another route from Australia to South Africa, whilst in April, 1911, a radio-telegraphic station was opened at Cocos Island, thus strengthening the line of communication between Australia and the East.

4. **The Pacific Cable.**—In July, 1898, a conference of representatives of Great Britain, Canada, New South Wales, Victoria, Queensland, South Australia, and New Zealand was held for the purpose of considering a project for a cable to be laid across the

Pacific Ocean, touching only British territory on its way from Australia to Canada, thus providing an "All Red" route, as it is termed, for a cable system between England and Australia. In the following year it was agreed at a meeting held by representatives of the countries interested that the cable should be laid, and that Great Britain and Canada should each pay five-eightieths of the cost, and the States of New South Wales, Victoria, Queensland, and the Dominion of New Zealand should each pay one-ninth. The construction and management of the cable were placed under the control of a Board composed of seven members—two each from Great Britain, Canada, and Australia, and one from New Zealand—called the Pacific Cable Board. The Australian shore-end of the cable was landed at Southport, Queensland, in March, 1902, and the cable was completed on the 31st October, 1902, and opened for traffic on the 7th December of the same year. The report of the Pacific Cable Board for 1920-21 states that while the cable has been singularly free from interruption it is recognised that the margin of safety must decrease as time goes on. Moreover, the capacity of the single line is inadequate when special circumstances cause a rush of heavy traffic. For these reasons the Board has had under consideration for some time the question of duplicating the cable, and, as a result, definite proposals to this end were submitted to the Governments concerned in April, 1920. There are cable stations at Norfolk Island, Fiji, and Fanning Island, and a branch cable runs from Norfolk Island to New Zealand. In 1910 the Board leased a wire from Bamfield, British Columbia, to Montreal, thus extending the Pacific cable system from Queensland to Montreal. The traffic is then carried across the Atlantic to the United Kingdom by the cables of the Anglo-American and Commercial Companies, or if desired the Marconi wireless system between Canada and the United Kingdom may be availed of for either homeward or outward messages at a reduction of 2d. on the through cable rate of 3s. per word. The operations of the Pacific cable for the year ended 31st March, 1921, resulted in a profit of £21,022, after providing working expenses, interest on loan and renewal fund contributions. In addition to the usual annual contribution of £30,000, a sum of £215,000 was transferred to the renewal fund to replace any loss by depreciation of securities in which the fund is invested and to strengthen the position of such fund for future contingencies. After deducting the annual sinking fund instalment of £17,545 from the profit of £21,022, there remained a surplus of £3,477, whereof the Commonwealth's share was £1,159. In accordance with the Pacific Cable Act 1901 the surplus was applied in the reduction of the balance of the original loan of £2,000,000. The following table shews particulars of the revenue, expenditure, total profit or loss and the proportion of the loss payable by the Commonwealth for the financial years 1911-15, and the proportion of profit credited to the Commonwealth for the years 1916-21.

REVENUE, EXPENDITURE, AND PROFIT OR LOSS ON WORKING OF PACIFIC CABLE, 1911 TO 1921.

Year ended the 31st March—	Revenue.	Expenditure (including Annuities and Renewal Fund).	Profit or Loss.	Commonwealth Proportion of Loss or Profit.
	£	£	£	£
1911 ..	138,678	186,888	Loss 48,210	Loss 16,071
1912 ..	159,150	199,649	" 40,499	" 13,500
1913 ..	167,901	200,171	" 32,270	" 10,757
1914 ..	197,848	217,798	" 19,950	" 6,650
1915 ..	225,045	232,961	" 7,916	" 2,638
1916 ..	310,516	292,592	Profit 17,924	Profit 5,975
1917 ..	336,774	332,543	" 4,231	" 1,410
1918 ..	411,061	385,668	" 25,393	" 8,464
1919 ..	564,097	554,516	" 9,581	" 3,193
1920 ..	664,986	654,552	" 10,434	" 3,478
1921 ..	633,343	629,866	" 3,477	" 1,159

5. **New Zealand Cables.**—A submarine cable joining New Zealand to the Australian Continent was laid in 1876. The line is 1,191 miles in length. The Australian shore-end of the cable is at Botany Bay, while the New Zealand terminus is at Wakapuaka, near Nelson, in the Middle Island, from which place another cable, 109 miles in length, is laid to Wanganui, in the North Island. For a period of ten years after its opening the cable was subsidised by the New South Wales and New Zealand Governments, the total contributions amounting to £10,000 a year. The branch from Norfolk Island to New Zealand of the Pacific cable was opened on the 23rd April, 1902. The length of this cable is 597 miles, the New Zealand terminus being at Doubtless Bay in the north of the North Island. During 1911 a scheme to lay a second cable between New Zealand and Australia (Auckland to Sydney) was adopted by the various Governments concerned, and the laying of the new cable was completed on the 24th December, 1912, the cable being opened for traffic on the 31st December, 1912.

6. **The New Caledonia Cable.**—In April, 1892, a French company, known as the *Compagnie Française des Câbles Télégraphiques*, entered into an agreement with the French, the New South Wales, and the Queensland Governments to lay down a submarine cable between New Caledonia and Queensland in return for guarantees by the French Government to the extent of £8,000, and by the Governments of New South Wales and Queensland to the amount of £2,000 each annually for a period of 30 years. The cable was opened for use in October, 1893, the Australian shore-end being at Burnett Heads, near Bundaberg. The guarantees of the Governments of New South Wales and Queensland have since been transferred to the Commonwealth Government.

7. **Number of Cablegrams Received and Despatched.**—The subjoined table shows the number of cablegrams received and despatched in the Commonwealth from 1918–19 to 1920–21 :—

**CABLEGRAMS RECEIVED AND DESPATCHED, COMMONWEALTH,
1918–19 TO 1920–21.**

Particulars	Cablegrams Received.			Cablegrams Despatched.			Total Cablegrams Received and Despatched.		
	1918–19.	1919–20.	1920–21.	1918–19.	1919–20.	1920–21.	1918–19.	1919–20.	1920–21.
Number	516,942	502,671	477,137	394,285	478,263	473,533	911,227	980,934	950,670

The following table shows the total number of cablegrams received and despatched in each State during the year 1920–21 :—

**NUMBER OF CABLEGRAMS RECEIVED AND DESPATCHED IN EACH STATE,
1920–21.**

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.(a)	C'wealth.
Number received	263,482	150,207	18,479	18,568	18,559	7,842	477,137
Number despatched	249,705	152,222	20,585	23,141	21,874	6,006	473,533
Total	513,187	302,429	39,064	41,709	40,433	13,848	950,670

(a) Exclusive of interstate cablegrams, which are included with interstate telegrams (see § 2 ante).

8. **Lengths of Cable Routes.**—The following table gives the lengths of various cable routes :—

LENGTHS OF CABLE ROUTES.

Via Darwin.				Via South Africa.			
		Miles.				Miles.	
Adelaide to Darwin .. ..	..	2,134		Perth to Mauritius .. ..	..	4,417	
Darwin to Banjoewangle .. ..	..	1,150		Mauritius to Durban .. ..	..	1,786	
Banjoewangle to London .. ..	..	9,841		Durban to Cape Town .. ..	..	800	
				Cape Town to Madeira .. ..	..	5,715	
				Madeira to Penzance .. ..	..	1,341	
				Penzance to London .. ..	..	260	
Total .. ..	..	13,125		Total .. ..	..	14,319	
Via Vancouver.				Via Russia.			
		Miles.				Miles.	
Southport (Queensland) to Norfolk Island ..	..	963		Sydney to Darwin .. ..	..	2,992	
Norfolk Island to Suva (Fiji) .. ..	..	1,129		Darwin to Hong Kong .. ..	..	4,237	
Suva to Fanning Island .. ..	..	2,351		Hong Kong to Possiet Bay .. ..	..	2,647	
Fanning Island to Bamfield (Canada) .. ..	..	3,980		Possiet Bay to Libau .. ..	..	6,399	
Across Canada .. ..	..	3,450		Libau to Newbiggin (England) .. ..	..	1,657	
Canada to Ireland .. ..	..	2,450					
Total .. ..	..	14,323		Total .. ..	..	17,932	

9. **Cable Rates.**—In 1872 the cable rate to England was nine guineas for twenty words, but when word rates were brought into general use in 1875, the rate between Great Britain and Australia was fixed at ten shillings and sixpence, subsequently altered to ten shillings and eightpence. In 1886 the Eastern Extension Telegraph Company reduced the rate to nine shillings and fourpence a word for ordinary messages, to seven shillings and a penny for Government messages, and to two shillings and eightpence a word for press messages. At a conference of the postal and telegraphic authorities held in March, 1891, the proposal to reduce the rates to four shillings a word for ordinary messages, three shillings and eightpence for Government, and one shilling and tenpence for press messages was agreed to, the States of New South Wales, Victoria, South Australia, Western Australia, and Tasmania undertaking to make good half the loss which the Eastern Company might suffer through such reductions. The States guaranteed to the company one-half of the amount of receipts short of the sum of £237,736—the amount received by the company in 1889 in respect of cable charges—the other half to be borne by the company. The Government of South Australia was also guaranteed by the other contracting States against any loss to the revenue which the lower cable rates might cause in the working of the overland lines. Queensland subsequently joined the other States in these guarantees. In 1893, however, owing to the heavy losses incurred, the rate for ordinary messages was increased to four shillings and ninepence per word, and at the same time New Zealand joined in the guarantees to the company and to South Australia.

(i) *Present Rates to United Kingdom.* On the acceptance by three of the States of the terms offered by the Eastern Extension Telegraph Company for the construction of a cable via South Africa, the rate for ordinary messages was reduced in May, 1900, to four shillings a word. It was further reduced to three shillings and sixpence in January, 1901, and to three shillings in January, 1902, and this rate has since applied to all cable systems connected with Great Britain with the exception of a partly wireless service which has been introduced by the Pacific Cable Board, and for which the “through” rate has been fixed at two shillings and tenpence per word. Under this arrangement cablegrams passing between Australia and the United Kingdom are transmitted by the Pacific cable between Australia and Canada and by the Marconi wireless system across the Atlantic. The scale for future reductions was to be based on a revenue standard and provided that the rate should be reduced to two shillings and sixpence per word, when the revenue averaged £330,000 per annum. But in consequence of the abnormal

conditions created by the war, involving a large increase in expenditure, this provision has been allowed to lapse. In September, 1912, the "through" charge for press cables was reduced from ninepence to sevenpence-halfpenny per word.

(ii) *Deferred Cablegrams.* With a view to affording additional cable facilities and to keeping the Pacific cable fully occupied during the whole 24 hours, proposals were made by the Postmaster-General's Department for the adoption of a system of deferred cablegrams. A meeting of representatives of the administrations and companies concerned was held in London in November, 1910, and the new rates came into force on the 1st January, 1912. Under this system a reduction of 50 per cent. in the charges is made, providing the message is written in plain language, and conveys no other meaning than that which appears on the face of it. Messages can only be transmitted after non-urgent private cablegrams and press cablegrams. Those which have not reached their destination within a period of 24 hours from the time of handing in are transmitted in turn with cablegrams charged full rate. They may be sent via the Pacific or Eastern routes to nearly all countries to which the ordinary rate exceeds tenpence per word. The arrangement, previous to the war, extended to some 60 countries, and became very popular. This service, together with that of the week-end cable letters has affected the ordinary cable business to a large extent. Deferred press cablegrams subject to a delay of eighteen hours, may be exchanged between the Commonwealth and the United Kingdom at the rate of fourpence halfpenny per word, and between the Commonwealth and Vancouver at the rate of one penny three farthings per word. The deferred cable service was suspended frequently during the war owing to the pressure of other cable business, and the service has not yet returned to normal conditions.

(iii) *Week-end Cable Letters.* The service of the week-end cable letters between the Commonwealth and the United Kingdom was introduced on the 4th January, 1913. Under this arrangement, messages written in plain language might be lodged at any post office in the Commonwealth or the United Kingdom in time to reach the forwarding cable office by post or telegraph by midnight on Saturday. The messages, which were deliverable by post on Tuesday morning, were charged at the rate of ninepence per word, plus ordinary telegraph rate, if required to be forwarded by land telegraph in either the country of despatch or destination.

The system was extended subsequently to messages between the Commonwealth and the Union of South Africa, India, Ceylon, Burma, Canada, Portugal, and Newfoundland. A further benefit was conferred on users, as week-end cables to the countries enumerated were transmitted by telegraph throughout without extra charge. The pressure on the cables during the war rendered the suspension of the week-end service necessary, and, although messages have been accepted since the war ended, practically no business was transacted in 1920-21.

The rates to the countries named, including the United Kingdom, are given hereunder:—

RATES FOR WEEK-END CABLE LETTERS.

Country.	Rate per Word.	Minimum Charge per Telegram.
United Kingdom ..	9d.	15/-
Union of South Africa ..	7d. (plus $\frac{3}{4}$ d. for those lodged in Tasmania)	11/8
India, Ceylon, and Burma ..	$7\frac{1}{2}$ d.	12, 6
Canada (ordinary rate 2s. 4d.) ..	7d.	11/8
Other parts of Canada ..	8d. to 10d.	12/11 to 16/8
Newfoundland ..	$8\frac{1}{2}$ d.	13/9
Portugal ..	9d.	15/-

Week-end cable letters may also be sent to the United Kingdom or Canada for transmission by registered post to other countries at an extra charge of 5d. per message.

(iv) *Rates to New Zealand.* As a result of the completion of the New Zealand branch of the Pacific cable in 1902, the rates charged for cablegrams between Australia and New Zealand, except to and from Tasmania, were uniformly reduced to fourpence-halfpenny per word. Between New Zealand and Tasmania the charge was fixed at fivepence-halfpenny a word, but it has since been reduced to fourpence-halfpenny. The charge for ordinary cablegrams from New Zealand to Great Britain was reduced from the 1st June, 1902, from five shillings and twopence to three shillings and fourpence a word, and has since been further reduced to three shillings a word.

10. *Subsidised Press Cable Service.*—In October, 1909, a Select Committee of the Commonwealth Senate was appointed to report upon the circumstances of the supply, conditions of sale, and distribution, which affect the Press Cable Service within and from outside the Commonwealth. A majority report of this Committee was issued in December, 1909, and recommended (a) the completion of an "All Red" cable route via Canada, (b) the conditional subsidization of a press cable association, (c) the utilisation of the High Commissioner's office for the dissemination in Australia of Empire news, and (d) the amendment of the Copyright Act in regard to cables.

In accordance with the recommendations of this Committee the Commonwealth granted a total subsidy of £6,000, extending over a period of three years, to the independent Press Cable Service, on the conditions that at least 6,000 cable words were supplied each week, to be sent via Pacific, and that any newspaper proprietary in the Commonwealth was permitted to become a subscriber at rates approved by the Government. This terminated on the 1st July, 1912, and a new arrangement was entered into under which the Commonwealth agreed to grant a subsidy of £2,000 per annum, provided that not less than 26,000 words were sent each month. A later agreement was drawn up to extend for a period of three years from 1st October, 1916, with an annual grant of £1,500, but within a year the service lapsed, the last payment being made by the Government in August, 1917.

11. *Cable Subsidies Paid.*—The agreement between the State Governments and the Eastern Extension Telegraph Company expired on the 30th April, 1900. From the year 1895 onwards the amounts guaranteed—£237,736 to the company and £37,552 to South Australia—were met by the receipts.

The following table shows the total amounts paid by way of cable subsidies for the years 1915–16 to 1920–21 :—

TOTAL AMOUNT OF CABLE SUBSIDIES PAID, 1915–16 TO 1920–21.

Year	..	..	..	1915–16.	1916–17.	1917–18.	1918–19.	1919–20.	1921–21.
Amount	..	..	£	4,860	3,929	3,851	3,756	3,797	3,749

As the agreement in connexion with the Tasmanian cable expired in 1909, and as new cables were laid by the Commonwealth Government, the guarantees were, in the course of the year 1910, reduced to those in connexion with the New Caledonia and Pacific cables. From 1915–16 the only cable subsidy paid by the Commonwealth was in respect of the New Caledonian cable guarantee.

§ 4. Telephones.

1. *Development of Telephone Services.*—The Postal Department has established telephone services in all the capital towns and in many of the important centres of population throughout the Commonwealth. Particulars as to the revenue from telephone services for the years 1914–21 are given on page 622 ante.

2. **Telephone Rates.**—On the 10th December, 1915, revised charges for telephone services came into operation. Under the new scale, ground-rent for telephones is calculated on the number of subscribers connected with the exchange or network, instead of being based on the total population residing within the telephone network, as formerly. The smallest and greatest rental charges remain the same as under the old system, but between these a more gradual scale was introduced. Previously the charge for calls made by a subscriber was at the rate of two calls for one penny up to 2,000 calls per half-year; above that number, three calls for one penny. This charge was increased to one penny per call, without any progressive reduction. At the same time, the public telephone charge per call was increased from one penny to twopence. On 1st October, 1920, telephone charges were again increased, and the rates given in the following table are now in force :—

TELEPHONES.—RENTAL CHARGES, 30th JUNE, 1922.

Exchanges or Networks with Subscribers' Lines Connected, as shewn hereunder.	Radius of Network with Main Exchange as Centre.	Annual Ground Rent, within Two-mile Radius.		
		For an Exclusive Service.	For each Subscriber or Instrument on a Two-party Service.	For each Subscriber or Instrument on a Three or more party Service.
	Miles.	£ s. d.	£ s. d.	£ s. d.
From 1 to 300	5	3 0 0	2 10 0	2 0 0
„ 301 to 600	5	3 5 0	2 10 0	2 0 0
„ 601 to 1,500	5	4 7 6	3 7 6	2 15 0
„ 1,501 to 4,000	10	4 12 6	3 15 0	3 2 6
4,001 and upwards ..	10	5 0 0	3 15 0	3 2 6

It is provided that for each effective call originating from a subscriber's instrument the charge shall be one penny in respect of exchanges or networks with 600 subscribers or less, and one penny farthing in respect of exchanges or networks with more than 600 subscribers.

3. **Particulars of Telephone Services.**—On 30th June, 1921, there were in the Commonwealth 183,363 telephone lines connected to 2,553 exchanges, as compared with 172,106 lines connected to 2,409 exchanges a year previously. The following tables shew the mileage of lines, etc., for telephone purposes, shewing trunk lines separately, on 30th June, 1920 and 1921 :—

MILEAGE OF LINES, ETC., FOR TELEPHONE PURPOSES (EXCLUSIVE OF TRUNK LINES), 30th JUNE, 1920 AND 1921.

Particulars.	1920.	1921.
Conduits duct miles	2,489	2,697
Conductors in aerial cables loop mileage	38,421	37,923
Conductors in underground cables	211,513	226,886
Conductors in cables for junction circuits	32,864	33,759
Open conductors single wire mileage	187,744	194,307

MILEAGE OF WIRES, TELEPHONE TRUNK LINES, 1920 AND 1921.

Particulars.	1920.	1921.
	Miles.	Miles.
Telephone trunk lines only	25,295	27,781
Telegraph and telephone purposes	79,930	82,234

Particulars relating to the telephone service in each State will be found in the following table :—

PARTICULARS OF TELEPHONE SERVICE, 1919, 1920, AND 1921.

Particulars.	Year (30th June.)	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Total C'wealth.
No. of Exchanges ..	1919	853	684	357	203	112	119	2,328
	1920	873	697	373	208	115	140	2,409
	1921	921	750	398	218	122	144	2,553
No. of lines connected ..	1919	65,734	44,035	21,146	12,619	9,026	4,754	157,314
	1920	70,700	49,017	22,803	14,319	9,905	5,362	172,106
	1921	74,490	52,791	23,855	15,984	10,438	5,805	183,363
No. of instruments connected	1919	84,118	60,376	26,152	17,189	11,599	5,838	205,272
	1920	91,117	66,211	23,161	19,273	12,671	6,567	224,000
	1921	96,710	72,088	29,637	21,480	13,412	7,180	240,507
No. of subscribers' instruments	1919	80,996	57,811	24,910	16,514	11,008	5,659	196,898
	1920	88,015	64,479	26,953	18,545	12,081	6,232	216,305
	1921	93,467	70,319	28,392	20,705	12,827	6,854	232,564
No. of public telephones ..	1919	1,558	1,368	822	437	337	75	4,597
	1920	1,606	1,376	800	440	343	234	4,789
	1921	1,693	1,410	835	473	355	206	4,972
No. of other local instruments	1919	1,564	1,197	420	238	254	104	3,777
	1920	1,496	356	408	288	247	101	2,896
	1921	1,550	359	410	302	230	120	2,971
Instruments per 100 of population	1919	4.4	4.1	3.7	3.8	3.6	2.8	4.1
	1920	4.7	4.4	3.9	4.1	3.8	3.0	4.3
	1921	4.60	4.69	3.85	4.28	4.03	3.39	4.41
Earnings ..		£	£	£	£	£	£	£
	1919	777,859	526,411	275,616	171,843	108,010	54,144	1,913,883
	1920	868,049	599,960	306,860	202,829	125,630	64,741	2,168,069
Working expenses ..	1921	964,981	695,409	339,116	235,269	142,906	73,800	2,450,981
	1919	578,304	335,977	177,805	96,548	95,208	40,796	1,324,638
	1920	635,600	375,034	190,900	119,477	101,892	46,251	1,469,154
	1921	788,671	443,522	243,135	150,960	122,896	59,438	1,808,622
Percentage of working expenses to earnings		%	%	%	%	%	%	%
	1919	74.35	63.82	64.51	56.18	88.15	75.35	69.21
	1920	73.22	62.51	62.21	58.91	81.10	71.44	67.76
	1921	81.73	63.78	71.70	64.16	86.00	81.09	73.79

The subjoined table gives the number of subscribers' lines and the daily calling rate at Central, Suburban, and Country telephone exchanges in the several States for the year 1920-21. A comparison of the daily calling rates for each class of exchange shews New South Wales to have registered the greatest number per line at central exchanges, Western Australia at suburban exchanges, and Queensland at country exchanges. Taking the figures for the Commonwealth, it will be observed that the average number of calls per line at central exchanges was slightly more than double the number registered at suburban exchanges, while the average for suburban exchanges was considerably more than double the number shewn for country exchanges.

NUMBER OF SUBSCRIBERS' LINES AND DAILY CALLING RATE AT TELEPHONE EXCHANGES, 1920-1921.

State.	Central Exchanges.		Suburban Exchanges.		Country Exchanges.		Total.	
	Subscribers' Lines.	Average Outward Calls Daily per line.	Subscribers' Lines.	Average Outward Calls Daily per line.	Subscribers' Lines.	Average Outward Calls Daily per line.	Subscribers' Lines.	Average Outward Calls Daily per line.
New South Wales	10,116	10.0	33,182	4.1	28,425	1.1	71,723	3.7
Victoria ..	11,675	8.4	21,981	3.7	16,037	1.6	49,693	4.1
Queensland ..	6,321	7.8	3,186	3.4	13,557	2.4	23,064	4.0
South Australia	6,283	8.1	5,025	4.4	4,100	1.4	15,408	5.1
Western Australia	3,956	6.3	2,370	4.8	3,791	2.1	10,117	5.4
Tasmania ..	2,157	5.1	288	3.2	3,369	1.8	5,814	3.1
Commonwealth	40,508	8.3	66,032	4.0	69,279	1.6	175,819	4.0

In the following table the number of Telephone Trunk Line Calls recorded, the amount of revenue received, and the average revenue per call are shown for each of the States for the years 1918-19 to 1920-21 :—

TRUNK LINE CALLS AND REVENUE FOR THE YEARS 1918-19 TO 1920-21.

Particulars.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Commonwealth.
Total Calls for Year—	No.	No.	No.	No.	No.	No.	No.
1918-19 ..	4,484,816	2,797,346	1,861,431	883,517	418,984	557,002	11,003,096
1919-20 ..	4,898,098	3,200,523	2,050,209	1,092,516	489,905	688,949	12,420,205
1920-21 ..	5,042,929	3,363,971	2,130,234	1,148,882	498,308	699,298	12,883,622
Total Revenue for Year—	£	£	£	£	£	£	£
1918-19 ..	155,345	100,335	87,273	39,694	17,873	18,567	419,087
1919-20 ..	172,200	116,262	97,983	49,444	22,724	23,241	481,854
1920-21 ..	178,704	124,721	102,748	52,162	24,938	23,508	506,781
Average Revenue per Call—	Pence.	Pence.	Pence.	Pence.	Pence.	Pence.	Pence.
1918-19 ..	8.32	8.61	11.25	10.78	10.24	8.00	9.14
1919-20 ..	8.44	8.72	11.47	10.86	11.13	8.10	9.31
1920-21 ..	8.50	8.89	11.57	10.89	12.01	8.07	9.47

SECTION XIX.

COMMONWEALTH FINANCE.

§ 1. General.

1. Financial Provisions of the Constitution.—The main provisions of the Constitution relating to the initiation and development of the financial system of the Commonwealth are those contained in Chapter IV., "Finance and Trade," being sections 81 to 105 of the Constitution Act. Two other sections which have a most important bearing on questions of Commonwealth finance are sections 69 and 51.

Section 69 provided for certain departments which were transferable under the Constitution. Section 51 referred to other departments which it would be necessary to create under the Constitution. Section 87 dealt with the financial relations between the Commonwealth and the States. All of these matters have been treated in detail in previous issues of the Official Year Book up to and including No. 12, and no further reference to them will be made here.

It is customary for the Treasury to issue every year a document entitled "The Treasurer's Statement of Receipts and Expenditure during the year ended 30th June"; and with this is incorporated the report of the Commonwealth Auditor-General for the year. This series of annual statements is the authority for the bulk of the tables given herein.

2. Accounts of Commonwealth Government.—The Commonwealth Government, like the States Governments, operates nearly all its accounts by means of three funds, the Consolidated Revenue Fund, the Trust Fund, and the Loan Fund. The last mentioned only came into existence in the financial year 1911–12, but on the outbreak of war became so important that it is now treated in two parts—a General Loan Fund mainly for purposes of Public Works, and a War Loan Fund for purely military purposes. The accounts of these funds are now so interwoven that a proper conspectus of the Commonwealth Accounts can hardly be obtained by an analysis of each of them singly. Two tables are therefore appended, shewing receipts and disbursements from all sources for the last five years. The different funds will then be treated in detail in the subsequent paragraphs.

COMMONWEALTH RECEIPTS, 1916–17 TO 1920–21.

Heading.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Consolidated Revenue	34,067,434	36,839,868	44,716,918	52,783,102	65,517,608
Trust Funds in aid of Revenue ..	3,000,000	2,077,427	3,925,820	3,523,057	5,724,806
Total	37,067,434	38,917,295	48,642,738	56,306,159	71,242,414
General Loan Fund .. ..	..	1,803,447	1,429,891	1,286,786	4,101,726
Total .. ..	..	1,803,447	1,429,891	1,286,786	4,101,726
War Loan Fund	50,611,810	60,865,195	57,637,507	27,125,203	33,064,475
Unexpended Balance from previous years	20,233,115	17,730,688	23,500,774	18,945,392	..
Total	70,844,925	78,595,883	81,138,281	46,070,595	33,064,475
Grand Total	107,912,359	119,316,625	131,210,910	103,663,540	108,408,615

COMMONWEALTH EXPENDITURE, 1916-17 TO 1920-21.

Heading.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Expenditure from Consolidated Revenue	(a)25,719,588	26,573,674	34,786,107	40,337,804	52,059,118
Balance paid into Trust Funds ..	2,077,427	3,925,820	3,476,478	5,724,806	6,618,327
Expenditure from Trust Funds ..	3,000,000	2,077,427	3,879,241	3,523,057	5,724,806
Unexpended Balance from Trust Funds			46,579		
Subsidy to States	6,270,419	6,340,374	6,454,333	6,720,492	6,840,163
Total	37,067,434	38,917,295	48,642,738	56,306,159	71,242,414
General Loan Fund Expenditure ..	..	1,803,447	1,429,891	1,286,786	4,101,726
Total .. .. .	..	1,803,447	1,429,891	1,286,786	4,101,726
War Expenditure from War Loan Fund	53,114,237	55,095,109	62,192,889	46,070,595	26,859,445
Unexpended Balance from War Loan Fund	17,730,688	23,500,774	18,945,392	..	6,205,030
Total	70,844,925	78,595,883	81,138,281	46,070,595	33,064,475
Grand Total	107,912,359	119,316,625	131,210,910	103,663,540	108,408,615

(a) Includes £371,118 repayment of advance made from Notes Fund in 1914-15.

One transaction of the year 1920-21 is worthy of record. The sum of £7,780,542, being part of the accumulated profit of the Australian note issue, was employed in cancelling Commonwealth Inscribed Stock and Treasury Bills. This has not been treated as a Revenue transaction.

§ 2. Consolidated Revenue Fund.

(A) Nature of Fund.

The provisions made for the formation of a Commonwealth Consolidated Revenue Fund, and the means to be adopted for operating on that fund, are contained in sections 81, 82, and 83 of the Constitution. In section 81 it is provided that "All revenues or moneys raised or received by the Executive Government of the Commonwealth shall form one Consolidated Revenue Fund, to be appropriated for the purposes of the Commonwealth in the manner and subject to the charges and liabilities imposed by this Constitution." A strictly literal interpretation of this section would appear to require all loan and trust moneys received by the Commonwealth Executive to be paid to Consolidated Revenue. It is, however, held by Quick and Garran, in their "Annotated Constitution," that the "generic word *moneys* must be controlled by the preceding specific word *revenues*, and limited to moneys in the nature of revenue." This is the view of the matter which has been adopted by the Commonwealth Treasury in the preparation of its accounts. At present certain moneys received by the Commonwealth, which are not of the nature of revenue, are paid to Trust Account, and other moneys are paid to Loan Account. As regards expenditure from the Consolidated Revenue Fund, section 82 provides that the costs, charges, and expenses incident to the collection, management, and receipt of the Consolidated Revenue Fund should form the first charge thereon, while section 83 stipulates that "no money shall be drawn from the Treasury of the Commonwealth except under appropriation made by law." Such appropriations are either special, and as such are provided for by means of a permanent Act, or annual, and provided for in an annual Appropriation Act.

(B) Revenue.

1. **Total Collections.**—The consolidated revenue of the Commonwealth, which in 1901-2, the first complete financial year under the new regime, amounted to £11,296,985 had, in 1920-21, reached a total of £65,517,608, an increase in the period of £54,220,623.

Particulars concerning the total amount of revenue collected by the Commonwealth Government from 1st July, 1916, to 30th June, 1921, are contained in the following table :—

CONSOLIDATED REVENUE OF THE COMMONWEALTH, 1916-17 TO 1920-21.

	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Commonwealth	34,067,434	36,839,868	44,716,918	52,783,102	65,517,608

The great increase in recent years is due to the large expansion in direct taxation, which will be dealt with in detail in a later subsection.

2. Collections per Head.—In the table given hereunder particulars are furnished of the amount of revenue per head of population collected in respect of the Commonwealth for the last five years :—

COMMONWEALTH REVENUE PER HEAD OF POPULATION, 1916-17 TO 1920-21.

Source of Revenue.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Taxation	4 19 9	4 18 9	6 9 4	7 17 9	9 13 9
Public Works and Services ..	1 8 9	1 18 1	1 16 0	1 8 7	1 13 4
Other Receipts	0 10 0	0 11 1	0 10 8	0 12 7	0 15 1
Total	6 18 6	7 7 11	8 16 0	9 18 11	12 2 2

3. Sources of Revenue.—The following table furnishes detailed particulars concerning the Commonwealth revenue derived from each source during the years 1916-17 to 1920-21 :—

SOURCES OF COMMONWEALTH REVENUE, 1916-17 TO 1920-21.

Source of Revenue.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Taxation—					
Customs	12,373,664	9,486,555	11,605,410	13,705,220	21,731,210
Excise	3,236,623	3,737,757	5,821,560	7,869,339	10,078,606
Land Tax	2,121,952	2,123,779	2,109,171	2,110,306	2,155,699
Probate Duties	1,062,168	947,232	923,908	1,441,819	1,179,513
Income Tax	5,621,950	7,365,514	10,376,456	12,848,123	14,351,408
Entertainments Tax	110,683	245,898	358,126	557,911	649,828
War Time Profits Tax .. ..	..	680,008	1,206,538	2,569,012	2,083,139
War Postage .. ..	..	..	463,317	745,962	197,928
Total	24,527,040	24,606,743	32,864,486	41,847,692	52,427,421
Public Works and Services—					
Postal	5,498,517	5,762,190	6,110,522	6,744,755	8,388,569
Railways	305,964	261,107	198,988	265,918	235,387
Commonwealth Steamers .. ..	..	886,000	1,015,762	..	137,959
Detained Enemy Vessels	1,272,621	2,173,418	1,671,905	344,411	131,763
Other .. ..	..	468,769	156,321	218,209	141,418
Total	7,077,102	9,485,484	9,151,498	7,573,293	9,035,096
Other Revenue—					
Interest, Discount, etc.	865,655	995,578	1,479,426	1,589,347	1,996,012
Coinage	354,276	223,378	125,634	76,439	106,373
Defence	478,326	683,804	262,786	183,227	185,649
Quarantine	19,871	16,453	44,118	62,053	42,972
Territories (a)	70,333	71,053	97,873	65,206	79,575
Factories, etc.	20,599	20,282	23,623	34,067	40,639
Lighthouses	99,830	108,556	125,231	153,992	180,105
Pension Contributions	50,474	51,396	51,763	57,642	54,632
Defence Trust Account .. ..	..	250,310	185,082	270,504	116,329
Unexpended Balances of London Orders .. ..	..	186,149	185,746	703,264	696,095
Miscellaneous	504,128	134,684	119,652	161,376	556,710
Total	2,463,202	2,747,641	2,700,934	3,362,117	4,055,091
Grand Total	34,067,434	36,839,868	44,716,918	52,783,102	65,517,608

(a) Exclusive of Railways, and other items which appear elsewhere under their appropriate headings.

In addition to the new direct taxation, there was for some time a fairly steady return from Customs and Excise. In the two years 1916-18, however, there was a striking fall in the Customs returns, due probably to the diminution of imports caused by a scarcity of tonnage. A marked improvement was manifested in 1919-20. In 1920-21 the receipts from this source were abnormally high owing to the fulfilment of large numbers of contracts abroad before the anticipated time. The postal receipts have shewn a consistent upward tendency, and there has been also a large addition to the revenue in recent years by the operations of the Commonwealth steamers, detained enemy vessels, and other activities.

4. Customs Revenue for Past Five Years.—Particulars for the Commonwealth as a whole, for the five years 1916-17 to 1920-21, are furnished in the following table :—

COMMONWEALTH CUSTOMS REVENUE, 1916-17 TO 1920-21.

Classes.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Stimulants	1,986,321	1,693,957	1,455,667	1,880,531	1,773,103
Narcotics	1,300,683	1,236,085	1,268,357	1,590,450	1,533,860
Sugar	453,380	51,119	107,965	(a) 7,229	3,193
Agricultural products ..	862,227	603,605	515,236	726,360	819,842
Apparel and textiles ..	3,197,778	2,393,518	3,422,371	3,444,292	6,195,545
Metals and machinery ..	1,404,705	1,000,943	1,603,767	2,165,221	4,728,937
Oils, paints, etc. ..	338,202	267,129	319,043	311,022	542,619
Earthenware, etc. ..	249,525	176,244	248,664	280,064	643,731
Drugs and chemicals ..	163,027	163,623	219,532	289,437	420,327
Wood, wicker and cane ..	277,396	203,430	214,715	274,500	540,638
Jewellery, etc. ..	325,718	279,785	334,986	413,134	704,749
Leather, etc. ..	498,874	346,073	466,689	576,106	690,455
Paper and stationery ..	419,323	299,330	506,662	467,623	1,091,173
Vehicles	429,077	322,344	337,334	625,498	1,033,006
Musical instruments ..	107,915	110,413	110,850	142,082	239,822
Miscellaneous articles ..	320,334	298,661	425,349	477,612	718,752
Other receipts	39,179	40,296	48,323	48,517	51,458
Total Customs	12,373,664	9,486,555	11,605,410	13,705,220	21,731,210

(a) Debit.

5. Excise Collections, 1916-17 to 1920-21.—Particulars concerning the amount of Excise collected under each head during each of the years ending 30th June, 1917, to 1921, are given hereunder :—

COMMONWEALTH EXCISE REVENUE, 1916-17 TO 1920-21.

Particulars.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Beer	1,387,115	1,703,888	2,862,760	3,702,442	5,439,339
Spirits	670,768	804,476	1,098,440	1,609,065	1,558,766
Tobacco	1,172,787	1,223,792	1,847,661	2,545,214	3,055,308
Licenses	5,953	5,601	12,699	4,681	12,569
Total Excise	3,236,623	3,737,757	5,821,560	7,869,339(a)	10,078,696(b)

(a) Including £7,937 "Other."

(b) Including £12,714 starch.

Comparing the Excise collections for 1920-21 with those for 1916-17, it will be seen that the revenue from beer, spirits, and tobacco, the most important items, has much more than doubled in the period under review. The increased revenue from beer is

especially remarkable. The large increase in every item in the last three years is due to the operation of increased excise duties which came into force on 25th September, 1918.

6. Commonwealth Direct Taxation.—(i) *General.*—Under section 51, sub-section (ii) of the Constitution, power is given to the Commonwealth Parliament to make laws with respect to taxation, but so as not to discriminate between States or parts of States. Section 90 of the Constitution makes the power of the Commonwealth Parliament to impose Customs and Excise duties an exclusive one, but it would appear that as regards all other forms of taxation the States and Commonwealth possess concurrent powers. The question of the imposition by the Commonwealth Parliament of direct taxes such as land and income taxes is one which has been the subject of considerable discussion, and the opinion has been expressed that the intention of the framers of the Constitution was that of restricting the powers of taxation of the Commonwealth to the imposition of Customs and Excise duties, except in case of great national peril. Whatever the intention of the framers may have been in this matter, the Constitution itself expresses no such limitation, and consequently the Commonwealth Parliament is unfettered in the imposition of taxation. Up to the end of the financial year 1909-10 the only taxes so levied were those of Customs and Excise, treated in detail in the foregoing paragraphs. During the 1910 session of the Federal Parliament, however, an Act—assented to on 17th November, 1910—was passed, giving to the Commonwealth the power of levying a tax upon the unimproved value of all lands within the Commonwealth not specially exempted. Detailed reference to this Act will be found in Commonwealth Year Books Nos. 5 and 6.

The outbreak of war in 1914 resulted in a great increase in Federal direct taxation. Four new taxes were levied in four successive years, viz., Probate duties, Income Tax, Entertainments Tax, and War Time Profits Tax, all of which have been described in previous issues of the Official Year Book.

(ii) *Probate and Succession Duties.*—Collections from this source for the five years, 1916 to 1921, are given hereunder:—

COMMONWEALTH PROBATE AND SUCCESSION DUTIES, COLLECTED IN EACH STATE, 1916-17 TO 1920-21.

Year.	N.S.W.	Vic. (b)	Q'land.	S. Aust. (a)	W. Aust.	Tas.	Total.
	£	£	£	£	£	£	£
1916-17 ..	306,249	588,125	61,239	65,130	30,064	11,361	1,062,168
1917-18 ..	338,006	448,225	55,181	69,737	18,616	17,467	947,232
1918-19 ..	307,499	377,872	56,909	131,488	28,638	21,502	923,908
1919-20 ..	399,896	700,629	60,670	144,077	99,826	36,720	1,441,818
1920-21 ..	385,070	432,281	98,054	171,450	76,516	16,142	1,179,513

(a) Including Northern Territory.

(b) Including Central Office.

In this table and the corresponding ones dealing with Land Tax, Income Tax, and War Time Profits Tax, it must be noted that the amount received in Victoria includes that collected on behalf of the Central Office, which deals with taxpayers who own property in more than one State.

(iii) *Commonwealth Income Tax.* The first Commonwealth Income Tax was levied during the financial year 1915-16. The legislation on the subject comprised the Income Tax Assessment Act No. 34 of 1915, as amended by the Income Tax Assessment

Acts Nos. 47 of 1915, 37 of 1916, 39 of 1916, 18 of 1918, and 31 and 32 of 1921. Full details as to the original Acts are to be found in Commonwealth Official Year Book No. 9. The result of the last five years' collections was as follows :—

COMMONWEALTH INCOME TAX COLLECTIONS IN EACH STATE, 1916-17 TO 1920-21.

States.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
New South Wales	1,670,829	2,543,427	3,674,633	4,291,947	4,920,154
Victoria (a) ..	2,547,222	2,847,448	3,966,829	5,325,003	5,867,958
Queensland ..	545,475	795,717	1,206,051	1,446,503	1,269,242
South Australia ..	433,446	612,225	803,950	906,837	1,382,029
Western Australia	314,374	433,703	487,842	558,026	557,277
Tasmania ..	108,837	149,947	234,066	318,051	350,382
Northern Territory	1,767	3,047	3,085	1,757	4,366
Total ..	5,621,950	7,385,514	10,376,456	12,848,124	14,351,408

(a) Including Central Office.

(iv) *Entertainments Tax.* The rate of Entertainments Tax, according to Amending Act No. 11 of 1919, is as follows :—For tickets of 6d. and less, $\frac{1}{2}$ d.; exceeding 6d. but not exceeding 1s., 1d.; exceeding 1s., 1d. for the first shilling, and $\frac{1}{2}$ d. for every subsequent sixpence or part of sixpence. The collections for the first five years are as follows :—

ENTERTAINMENTS TAX : COLLECTIONS IN EACH STATE, 1916-17 TO 1920-21.

State.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
New South Wales ..	48,990	107,033	136,932	234,327	272,373
Victoria ..	32,947	72,209	110,815	176,411	203,781
Queensland ..	12,730	30,086	45,930	62,671	75,332
South Australia ..	8,016	18,430	27,534	38,990	42,210
Western Australia ..	4,954	11,879	27,934	34,210	39,716
Tasmania ..	2,992	5,988	8,680	10,993	16,266
Northern Territory ..	54	273	301	309	150
Total ..	110,683	245,898	358,126	557,911	649,828

(v) *War Time Profits Tax.* This tax came into force on 22nd September, 1917. It provides for a tax on the amount by which the profits made in the war-time financial year (1st July to 30th June following), exceeds the pre-war standard of profits, which may be either :—(a) the average profits of two of the three years before 4th August, 1917, or (b) 10 per cent. on the capital employed in a business. The tax in respect of profits derived in the financial year 1st July, 1915, to 30th June, 1916, was 50 per cent., and in all subsequent years 75 per cent. The collections for the first four years are given in the

accompanying table. The original section 2 of the War Time Profits Tax Assessment Act stated that this Act would apply to the profits of any business arising up to 30th June next after the Declaration of Peace in connexion with the late war. Subsequent to the signing of the armistice, on 11th November, 1918, the section was amended to accord with that intention, and thus fixed the final application of the Act to profits arising during the year ended 30th June, 1919. The figures for the years 1919-21 represent delayed collections under this Act.

WAR TIME PROFITS TAX : COLLECTIONS IN EACH STATE, 1917 TO 1921.

State.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£
New South Wales	147,285	524,658	880,442	784,339
Victoria (a)	371,969	364,572	1,066,161	930,927
Queensland	33,526	125,329	230,283	122,728
South Australia	67,795	137,641	243,527	144,198
Western Australia	43,323	15,940	105,517	85,255
Tasmania	16,110	38,398	43,083	15,692
Total	680,008	1,206,538	2,569,013	2,083,139

(a) Including Central Office.

(vi) *War Postage*. This was a new source of revenue derived from an additional halfpenny rate imposed on postages from the 28th October, 1918. The amount credited to "War Postage" is the excess over the normal increase of revenue from postage. The amount collected for the balance of the financial year 1918-19 was £463,317, and in 1919-20 it was £745,962. In 1920-21 it fell to £197,928 as credits under this head of revenue ceased on 1st October, 1920. [For further reference see page 604.]

(vii) *Commonwealth Land Tax*.—Details in regard to rates of tax, etc., will be found in the Official Year Book No. 14 at the end of Section XX.

A table is appended shewing the actual amounts received by the Treasury for five years. The yield of the tax has been remarkably constant for some time.

COMMONWEALTH LAND TAX COLLECTIONS IN EACH STATE, 1916-17 TO 1920-21.

State.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
New South Wales	921,974	889,164	822,880	955,935	933,649
Victoria (a)	822,946	844,872	885,084	818,769	865,001
Queensland	143,317	149,989	141,121	112,064	85,978
South Australia	150,670	145,852	153,789	118,318	166,260
Western Australia	47,365	58,743	64,378	60,613	63,349
Tasmania	35,680	35,159	41,918	44,607	41,462
Total	2,121,952	2,123,779	2,109,170	2,110,306	2,155,699

(a) Including Central Office.

7. Details of Postal Revenue, 1916-17 to 1920-21.—Particulars concerning the postal revenue of the Commonwealth for each of the financial years from 1916-17 to 1920-21 are contained in the following table:—

COMMONWEALTH POSTAL REVENUE, 1916-17 TO 1920-21.

Particulars.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Private boxes and bags ..	33,239	34,926	35,672	37,188	40,044
Commission—					
Money orders and postal notes	127,775	129,651	133,955	147,175	169,256
Telegraphs	950,842	1,032,318	1,103,664	1,274,527	1,369,922
Telephones	1,549,961	1,731,149	1,876,928	2,159,449	2,431,980
Postage	2,614,542	2,625,262	2,726,524	2,874,730	4,142,781
Miscellaneous	222,158	208,884	233,779	251,686	234,586
Total	5,498,517	5,762,190	6,110,522	6,744,755	8,388,569

The item "Miscellaneous" includes a subsidy from the Commonwealth Bank for the conduct of Savings Bank business, the mail transit rates, and certain allowances.

8. Railways. The Commonwealth Government is now responsible for four lines, the Kalgoorlie-Port Augusta, the Port Augusta-Oodnadatta, the Darwin-Katherine River, and the Capital Territory line. The appended table shows the amounts paid into the credit of the Consolidated Revenue Fund on account of each of these railways for the past five years. In the case of the Port Augusta-Oodnadatta Railway the amount in the years 1916-17 and 1917-18 was made up by fees, wharfage rates, etc., and was independent of the working receipts. Under an arrangement which came into effect on 1st January, 1914, this line is worked by the South Australian Government, and the Commonwealth Government is to receive the profit, if any, on the working, or to pay the deficiency. Since 1914 there has always been a deficiency, which is met by a payment from the Commonwealth Government, and debited to the Northern Territory Account.

COMMONWEALTH REVENUE FROM RAILWAYS, 1916-17 TO 1920-21.

Railway.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Kalgoorlie-Port Augusta	271,388	164,203	150,356	233,564	221,386
Port Augusta-Oodnadatta	1,379	1,027			
Darwin-Katherine River	32,605	35,172	45,725	31,783	12,761
Capital Territory	592	705	407	571	1,240
Total	305,964	201,107	196,988	265,918	235,387

It will be noticed that there was a substantial fall in the receipts of the Kalgoorlie-Port Augusta Railway in 1917-18, due to the reduction in freight receipts. In 1915-16 and 1916-17 large amounts were credited to working receipts for the carriage of constructional material. The completion of the line in 1917-18 closed this source of revenue.

9. Commonwealth Steamships. About the end of June, 1916, the Commonwealth Government announced that, owing to the difficulty of obtaining tonnage, and to increasing freight charges, it had purchased fifteen steamers to insure to producers, as far as possible, the transport of their produce. The price given was rather more than £2,000,000, the capital cost brought forward from 30th June, 1917, being £2,080,656. The profits for the year 1916-17 amounted to £327,336, and for the year 1917-18 to £576,164, a total

of £903,500. Out of this amount the sum of £880,000 was transferred from the Trust Account to Consolidated Revenue in 1917-18, under the approval of the Treasurer. The Consolidated Revenue benefited further in 1918-19, the surplus earnings being £1,015,762. In 1919-20 there was not a sufficient balance in the Trust Account to allow of a transfer to Consolidated Revenue, these transfers being taken from Cash Balances and not from Revenue Account Balances, as disclosed by the Profit and Loss and Balance-sheet Statements of the line.

10. Detained Enemy Vessels. This is an item which first appeared in the Commonwealth accounts in 1914-15. For the first two years it appeared in the receipts of the Navy, but since 1916-17 it has ranked as a separate account. The great increases in 1916-17 and 1917-18 are due to higher freight charges, while the fall in 1918-19 is due to the fact that gross receipts were paid into the Consolidated Revenue in 1917-18, and net receipts in 1918-19.

11. Other Public Works and Services.—The most important items in 1917-18 were "Profit on sale of rabbit skins" £301,000, and "Profit on charter of vessels" £166,790, In 1918-19 they were "Profit under Wool Tops Agreement" £141,008, and "Profit on charter of vessels" £15,000. In 1919-20 they were "Profit under Cornsacks Distribution Account" £130,472, and "Profit under Wool Tops Agreement" £78,273. In 1920-21 they were "Profit under Wool Tops Agreement" £89,404, and "Profit on sale of coal to New Zealand Government" £51,555.

12. Interest, Discount, etc.—The most important investments of the Commonwealth Government from which interest is derived are—Loans to States, General Trust Funds, Loans to the London Market, Fixed Deposits with the Commonwealth and other Banks, and certain advances and overdrafts. In 1919-20, the main receipts from this source were—Interest on Loans and Advances to States, £967,538; Interest on Bank Deposits, £210,873; and Interest on General Trust Funds, £176,701. In 1920-21 they were Interest on Loans and Advances to States, £1,482,569; Interest on General Trust Fund Investments, £243,115; and Interest on Bank Deposits, £165,000.

13. Coinage.—The Commonwealth Revenue under this head is derived from profit on coin issued, and for 1920-21 was made up of £80,846 for silver and £25,527 for bronze. The great fall in revenue from this source during recent years is due to the rise in the price of silver, which has reduced the profits on seignorage to a very modest figure.

14. Defence.—The income from this source (which is derived from both Defence and Navy Offices) is mainly derived from sales of material and stores supplied, forfeitures, fines, costs, etc. In 1920-21, £104,422 was contributed by the Defence Department, and £81,227 by the Navy Office.

15. Patents, etc.—This heading includes Patents, Trade Marks, Copyright and Designs, the administration of which has been exclusively a Commonwealth concern for a very long time. In 1920-21, £28,251 was obtained from Patents, and £12,388 from Trade Marks, Copyright and Designs.

16. Unexpended Balance of London Orders. The largely increased amount for the last two years is due to an amendment by the Treasury of the London Account Regulations, which superseded the system of charging votes upon the remittance of amounts from the Commonwealth, and made such charge only when payment in London is actually completed. This necessitated the closing of the Trust Account for London Liabilities, and the transfer of unexpended balances to the Revenue.

17. Miscellaneous.—This includes several items which are either small in themselves, or not included under separate headings as they are virtually non-recurring. Thus in 1916-17 there was a large amount of £431,690 which was paid into Revenue under the operation of the Sugar Purchase Act of 1915. A large item appeared for the first time in 1920-21, viz., £394,016, net profit on Australian Note Issue.

(C) Expenditure.

1. **Nature of Commonwealth Expenditure.**—The disbursements by the Commonwealth Government of the revenue collected by it fell naturally, under the "book-keeping" system, into three classes, viz. :—

- (a) Expenditure on transferred services.
- (b) Expenditure on new services.
- (c) Payment to States of surplus revenue.

Of these three, only the first two were actual expenditure, the last being merely a transfer, the actual expenditure being incurred by the States. In accordance with the provisions of the Constitution, the expenditure on transferred services was, under the "book-keeping" system, debited to the several States in respect of which such expenditure was incurred, while the expenditure on new services was distributed *per capita*. Surplus Commonwealth revenue was paid to the States monthly. During the earlier years of Federation, viz., until the end of the year 1903-4, new works, etc., for transferred departments were treated as transferred expenditure, and were charged to the States on whose behalf the expenditure had been incurred. In subsequent years all such expenditure was regarded as expenditure on new services, and was distributed amongst the States *per capita*. Under the new system of keeping the accounts there is no further debiting of expenditure to the several States.

2. **Total Expenditure.**—The expenditure by the Commonwealth Government during the period 1916-17 to 1920-21 is shewn in the following table :—

COMMONWEALTH EXPENDITURE, 1916-17 TO 1920-21.(a)

	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Commonwealth ..	27,797,015	30,499,494	38,262,585	46,062,610	58,677,445

(a) Including balance paid into Trust Funds, but excluding subsidies to States.

The largely increased expenditure of recent years is due partly to Old-age and Invalid Pensions, but mainly to the expenditure from Revenue upon War Services.

3. **Expenditure per Head.**—Particulars concerning the Commonwealth expenditure per head are furnished hereunder :—

COMMONWEALTH EXPENDITURE PER HEAD OF POPULATION, 1916-17 TO 1920-21.

	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Commonwealth ..	5 13 0	6 2 5	7 10 7	8 13 8	10 16 10

4. **New Works, etc.**—As previously mentioned, the Commonwealth expenditure on new works, etc., for transferred departments was, prior to 1904-5, included under the head of "transferred" expenditure, but in that and subsequent years up to 1909-10 was

* For an exposition of the "book-keeping system" see Commonwealth Year Book No. 6, page 780.

treated as "other" expenditure, and debited to the States *per capita*. Particulars of the expenditure on new works, etc., during the last five years are given in the following table:—

COMMONWEALTH EXPENDITURE ON NEW WORKS, 1916-17 TO 1920-21.

Year ended 30th June—	Defence.	Trade and Customs.	Postmaster- General.	Treasury.	Prime Minister's Department.	Home and Territories.	Works and Railways.	Total.
	£	£	£	£	£	£	£	£
1917 ..	1,765,253	201,419	590,770	2,085	120,591	293,836	1,314,793	4,288,747
1918 ..	245,501	109,164	233,255	2,377	..	27,718	4,188	622,203
1919 ..	97,018	38,542	239,643	609	..	22,156	7,688	405,656
1920 ..	116,663	12,104	184,788	1	..	21,439	159	335,154
1921 ..	1,097,062	28,103	940,917	5,832	(a) 2,353	23,564	372	2,098,203

(a) Including £700 for Parliament.

It will be seen that the Commonwealth expenditure from Consolidated Revenue on new works for the first and last years of the table was of considerable magnitude. This was largely due to expenditure on defence matters, which was supplemented in 1916-17 by large payments on account of works and railways which had formerly been charged to loan funds.

5. Details of Expenditure from Consolidated Revenue.—The following table gives details of the expenditure from Consolidated Revenue. It is arranged in such a manner as to shew under each Department the expenditure on behalf of that Department:—

EXPENDITURE FROM CONSOLIDATED REVENUE, 1916-17 TO 1920-21.

Heads of Expenditure.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Cost of Departments—					
Governor-General	25,279	26,893	23,875	27,215	30,707
Parliament	344,060	237,464	245,713	348,415	323,359
Prime Minister	155,797	234,568	231,173	312,408	434,930
Attorney-General	94,185	96,930	94,686	111,007	132,446
Treasury (a)	1,545,923	2,902,578	1,222,580	2,479,078	3,764,051
Trade and Customs	648,147	715,129	817,505	992,142	964,993
Defence	1,544,775	1,283,063	1,392,859	1,163,792	1,553,045
Navy	1,514,961	1,551,258	1,663,888	1,748,847	2,568,786
Postmaster-General	5,288,998	5,349,994	5,449,722	6,136,920	7,305,243
Home and Territories	484,274	468,701	489,163	478,281	746,569
Works and Railways	886,661	672,893	683,874	714,196	698,392
Total	12,533,070	13,539,471	12,315,038	14,512,301	(c) 18,585,418
Miscellaneous—					
New Works	4,288,747	622,203	405,656	335,154	2,098,203
War Services (b)	8,421,654	11,863,250	21,255,101	24,579,099	30,464,247
Carried forward in respect of					
Pensions	2,077,427	3,925,820	3,476,478	5,724,806	6,618,327
Interest—State Loans Act	105,000	548,750	810,312	911,250	911,250
Other	371,117	..	..	..	..
Total	15,263,945	16,960,023	25,947,547	31,550,309	40,092,027
Grand Total	27,797,015	30,499,494	38,262,585	46,062,610	58,677,445

(a) For an explanation of the varying amounts in the expenditure on the Treasury, see footnote to the table on page 653. (b) For details see table on page 656. (c) Including £82,888 for Air Services.

More detailed reference to the items included under the above general heads is furnished in the succeeding sub-sections.

6. **Governor-General.**—In section 3 of the Constitution it is enacted that, until the Commonwealth Parliament otherwise provides, there shall be payable out of the Consolidated Revenue Fund for the salary of the Governor-General an annual sum of ten thousand pounds, and a proviso is made that the salary of the Governor-General shall not be altered during his continuance in office. The total expenditure in connexion with the Governor-General and establishment for the five years 1916-17 to 1920-21 is as follows :—

**EXPENDITURE, GOVERNOR-GENERAL AND ESTABLISHMENT,
1916-17 TO 1920-21.**

Details.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Salary	10,000	10,000	10,000	10,000	10,000
Governor-General's Establishment ..	5,079	6,351	4,390	9,243	13,127
Contingencies (a)	10,200	10,542	9,485	7,972	7,374
Interest on Commonwealth Treasury Bills ..	..	..	..	..	206
Total	25,279	26,893	23,875	27,215	30,707

(a) Represents official services outside the Governor-General's personal interests, and carried out in the main at the instance of the Government.

7. **Parliament.**—Under this head have been grouped all the items of expenditure connected with the Parliamentary government of the Commonwealth, including the salaries of the Ministers and the allowances to senators and members of the House of Representatives. Details for the five years 1916-17 to 1920-21 are furnished in the table given hereunder :—

EXPENDITURE, COMMONWEALTH PARLIAMENT, 1916-17 TO 1920-21.

Details.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Salaries of Ministers	13,650	14,901	15,300	15,231	15,368
Allowances to Senators	20,866	20,854	20,760	22,376	34,710
Allowances to Members of House of Representatives	39,072	42,796	42,261	40,993	69,133
Officers, staff, contingencies, etc. ..	36,771	39,583	37,584	40,132	51,661
Repairs, maintenance, etc.	1,988	1,518	1,568	1,663	1,686
Printing	18,997	16,864	26,863	21,347	23,810
Travelling expenses of Members and others	10,339	9,950	8,913	9,379	11,996
Insurance	342	342	342	342	342
Electoral Office	53,091	53,717	53,159	60,677	70,200
Election expenses	83,276	4,355	2,459	98,110	3,037
Referendum	77	..	..
Administration of Electoral Act ..	60,100	27,425	31,460	33,859	28,477
Miscellaneous	5,491	5,159	5,044	4,256	12,939
Total	344,060	237,464	245,713	348,415	323,359

In section 66 of the Constitution, provision is made that there shall be payable out of the Consolidated Revenue Fund of the Commonwealth, for the salaries of Ministers of State, an annual sum which, until Parliament otherwise provides, shall not exceed £12,000. This was modified in 1915-16, when the Minister of the Navy was given separate Cabinet rank. Allowances to senators and members of the House of Representatives are also provided for in the Constitution, section 48 of which specifies that until Parliament otherwise provides, each such allowance shall consist of £400 a year, reckoned from the day on which the member takes his seat. During the second session of the Commonwealth Parliament in 1907 the question of allowances to members came under consideration, and an Act was passed raising the annual allowance from £400 to £600, such increase to date from 1st July, 1907. During 1920, the salaries of members of both Houses were further increased to £1,000 per annum.

8. Prime Minister's Department.—This department was created during the financial year 1911-12. In addition to the Prime Minister's Office it includes the Audit Office taken from the Treasury, the Executive Council taken from the External Affairs Department, and the Public Service Commissioner's Office taken from the Home Affairs Department. In 1916-17 it assumed control of the High Commissioner's Office in London, which was detached from the old External Affairs Department when the latter was merged in the Home and Territories Department. The expenditure for the last five years is shewn in the following table :—

EXPENDITURE, PRIME MINISTER'S DEPARTMENT, 1916-17 TO 1920-21.

Details.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Salaries, contingencies, etc.	21,691	25,764	33,328	20,125	32,876
Executive Council	170	160	177	210	250
Audit Office	16,726	18,480	25,486	27,745	32,211
Rent, repairs, etc.	4,678	16,489	7,028	6,997	7,214
Public Service Commissioner's Office ..	22,142	22,329	23,129	26,757	30,546
High Commissioner's Office	31,518	52,166	57,106	66,037	75,764
Interest on Commonwealth Securities	22,274	23,467	25,781	27,464	21,620
Sinking Fund on Commonwealth Securities	2,433	2,433	2,433	2,433	433
Mail Service to Pacific Islands	17,073	35,021	28,800	21,600	43,501
Contribution to Secretariat, League of Nations .. ..	..	..	..	..	68,350
Miscellaneous	17,092	38,259	27,905	104,040	122,174
	155,797	234,568	231,173	312,408	434,939

The "Miscellaneous" vote for 1919-20 included £32,979 as a grant for the relief of distress caused by the maritime strike; £17,301 for the expenses incurred during the visit of the Prince of Wales; £10,994 for the Basic Wage Commission; £15,727 for the Australian Commission in the United States; and £10,000 as a reward to Sir Ross Smith. In 1920-21 the largest single item was one of £50,371, representing the balance of the expenses of the visit of the Prince of Wales. The remaining items included £10,881 for Basic Wage Commission; £5,418 for Conferences on Coal Industry disputes; £5,802 for Commonwealth representation at Geneva Conference; and £4,000 for Imperial Mineral Resources Bureau Grant.

9. Home and Territories.—Under this department, created in the financial year 1916-17, is placed the bulk of the old External Affairs Department (after the removal of the London office), and the Census and Statistics, and Meteorological Offices, taken from the old Home Affairs Department. The Darwin-Katherine River Railway is administered by the Works and Railways Department.

EXPENDITURE HOME AND TERRITORIES DEPARTMENT, 1916-17 TO 1920-21.

Details.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Chief Office	17,065	14,737	16,156	18,528	21,756
Census and Statistics	18,505	15,013	16,248	16,795	17,713
Meteorological Branch	27,499	25,971	28,209	29,706	84,923
Lands and Survey	15,556	14,449	15,935	17,280	22,236
Papua	61,746	51,918	51,260	51,492	62,656
Rents, repairs, etc.	1,951	10,493	14,905	13,207	16,380
Northern Territory	237,163	207,620	213,649	186,782	232,011
Federal Capital Territory .. ..	..	23,382	24,142	25,482	26,828
Norfolk Island	3,000	3,000	3,000	3,000	3,000
Interest on Commonwealth Securities (a)	72,202	74,548	84,881	91,572	54,032
Sinking Fund, Commonwealth Securities (a)	5,853	5,853	5,853	5,853	2,612
Miscellaneous	23,734	21,717	14,925	18,584	202,422
Total	484,274	468,701	489,163	478,281	746,569

(a) Includes Northern Territory and Port Augusta Railway.

The large "Miscellaneous" item in 1920-21 includes £149,150 special expenditure on the Census of 1921.

10. Attorney-General's Department.—The extra expenditure connected with this Department of late years has been caused in large measure by the extension of the Federal High Court, and an increase in the item "Patents, Trade Marks, etc." Details for the five years 1916-17 to 1920-21 are furnished hereunder:—

EXPENDITURE, ATTORNEY-GENERAL'S DEPARTMENT, 1916-17 TO 1920-21.

Details.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Attorney-General's Office	13,880	10,189	11,510	14,492	15,558
Crown Solicitor's Office	10,766	11,255	12,943	16,042	17,879
Salaries of Justices of High Court ..	21,500	21,500	21,500	22,448	21,556
High Court expenses	10,280	9,852	8,837	11,922	12,925
Court of Conciliation and Arbitration	11,068	7,900	6,242	7,650	9,112
Rent, repairs, etc.	3,217	9,414	4,839	4,733	5,889
Patents, Trade Marks, etc. ..	21,856	19,253	23,875	32,321	42,389
Miscellaneous	1,628	7,567	4,940	1,399	7,138
Total	94,195	96,930	94,686	111,007	132,446

11. Works and Railways Department.—The great extension of Commonwealth Works and Railways led, in 1916-17, to the separation of these functions from the old Home Affairs Department and the constitution of a separate office. This new office

also administers those Railways which were formerly under the control of the old External Affairs Department. The expenditure for the five years of its existence is as follows :—

EXPENDITURE, WORKS AND RAILWAYS DEPARTMENT, 1916-17 TO 1920-21.

Details.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Chief Office	40,558	31,162	36,594	39,770	45,317
Kalgoorlie-Port Augusta Railway	302,550	232,726	237,204	264,798	292,168
Port Augusta-Oodnadatta Rail- way, and Northern Territory Railways	312,906	172,637	162,077	159,456	156,900
Interest on Transferred Properties	404	403	403	403	374
Interest on Commonwealth Se- curities	198,406	208,811	226,083	232,948	174,002
Sinking Fund on Commonwealth Securities	11,957	11,957	11,957	11,957	13,200
Rent, repairs, etc.	14,635	2,953	2,957	3,286	4,670
Miscellaneous	5,245	12,244	6,599	1,578	11,761
Total	886,661	672,893	683,874	714,196	698,392

The rather large expenditure on the Port Augusta-Oodnadatta Railway in 1916-17, as compared with subsequent years, is due to the repayment of £137,128 which constituted part of the debt upon the line, and matured on 1st April, 1917.

12. *Treasurer's Department.*—The sub-departments under the control of the Commonwealth Treasurer are the Treasury, the Pensions Department, and the Taxation Office. Details of the expenditure of this Department for the last five years are given in the following table :—

EXPENDITURE, TREASURER'S DEPARTMENT, 1916-17 TO 1920-21.

Details.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Treasury	37,993	29,391	32,072	48,393	61,139
Taxation Office	198,967	281,523	311,330	375,710	513,422
Pensions Office	52,214	53,391	61,406	73,509	85,016
Maternity Allowance Office ..	13,263	12,280	11,209	12,708	15,902
Coinage	28,728	30,481	18,411	18,956	33,981
Rent, Repairs, etc.	15,487	20,491	18,715	25,676	28,090
Interest on Commonwealth Securities	19,833	12,273	..	..	41,223
Miscellaneous	29,411	7,696	93,597	29,132	34,277
Departmental Expenditure	395,896	447,526	546,740	584,084	813,050
Invalid and Old-age Pen- sions (a)	453,344	1,781,564	..	1,196,454	2,174,336
Maternity Allowance	662,030	634,428	620,080	625,865	700,760
Maintenance of persons in charitable institutions ..	34,653	39,060	55,760	72,675	75,905
Total	1,545,923	2,902,578	1,222,580	2,479,078	3,764,051

(a) In addition, the following amounts were spent from Trust Funds :—In 1916-17, £3,000,000; in 1917-18, £2,077,427; in 1918-19, £3,879,241; in 1919-20, £3,350,425; and in 1920-21, £2,900,000.

The fluctuations in the total expenditure on this Department are mainly due to the variations in the method of payment of the Invalid and Old-age Pensions, which, as explained in the footnote, are partly paid from Trust Funds. The increase in the departmental expenditure is largely owing to the Taxation Office. The "Miscellaneous" vote for 1918-19 included £78,344, temporary credits under certain Trust Fund accounts.

13. **Trade and Customs.**—Under this head have been included the expenditure of all the sub-departments under the control of the Minister of Trade and Customs, as well as the amounts payable as sugar and other bounties and the expenses in connexion therewith. The administration of Patents, Trade Marks, and Copyright is now entrusted to the Attorney-General's Department. Particulars for the five years 1916-17 to 1920-21 are given in the following table :—

EXPENDITURE, TRADE AND CUSTOMS DEPARTMENT, 1916-17 TO 1920-21.

Details.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Chief Office	19,223	21,849	29,404	37,362	43,861
Customs (ordinary)	344,303	339,698	350,253	399,534	460,187
Fisheries	170	224	96	..	18
Analyst	4,440	3,498	4,804	5,637	5,663
Audit (proportion)	5,786	4,525	4,617	5,538	7,940
Quarantine	46,251	50,748	150,820	100,030	100,583
Pensions and retiring allowances	16,215	16,545	17,213	17,186	16,803
Rents, repairs, etc.	19,103	20,945	18,066	20,933	24,386
Sugar and other bounties	14,623	15,418	30,460	16,292	24,406
Inter-State Commission	10,096	11,903	12,007	10,545	3,650
Lighthouses	128,767	133,837	137,364	147,349	168,314
Interest on transferred properties	29,933	79,294	43,951	77,795	71,469
Interest on Commonwealth securities .. ..	..	726	2,200	3,267	3,501
Bureau of Commerce and Industry .. ..	..	..	..	3,774	5,160
Institute of Science and Industry .. ..	..	6,981	13,131	13,109	16,042
Miscellaneous	9,237	8,938	3,119	133,791	13,010
Total	648,147	715,129	817,505	992,142	964,993

The rise in expenditure on quarantine and lighthouses in recent years has caused an increase in the expenditure on this Department. The large "Miscellaneous" vote 1919-20 is due to an item of £130,036 paid to the Australian Wheat Board as profit on cornsacks.

14. **Defence.**—The Commonwealth expenditure from Consolidated Revenue in connexion with Defence, which in 1901-2 amounted to £861,218, had by 1920-21 grown to only £1,553,045. As shewn elsewhere, the bulk of the war expenditure was provided for out of loan. Particulars for the five years 1916-17 to 1920-21 are as follows :—

EXPENDITURE, DEFENCE, 1916-17 TO 1920-21.

Details.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Chief Office	49,267	50,163	47,143	59,133	64,188
Military	1,311,481	1,052,848	1,153,036	914,089	1,276,531
Audit (proportion)	11,117	21,548	8,407	13,196	14,269
Pensions and retiring allowances	191	380	380	375	1,412
Rents, repairs, etc.	68,314	54,599	53,484	46,063	62,721
Interest on transferred properties	88,512	88,490	92,289	88,925	82,560
Interest on Commonwealth Securities .. ..	..	1,839	5,917	12,025	23,434
Miscellaneous	15,893	13,196	32,203	29,986	27,930
Total	1,544,775	1,283,063	1,392,859	1,163,792	1,553,045

15. **Navy Office.**—During the financial year 1915-16, the Navy Office, owing to its increasing importance, was separated from the Defence Department and constituted an independent Department. Since 30th June, 1921, it has once more been amalgamated with the Defence, but in this issue of the Official Year Book the accounts will appear separately. Appended is the expenditure for the last five years, under similar headings, to those of the Defence Department:—

EXPENDITURE, NAVY DEPARTMENT, 1916-17 TO 1920-21.

Details.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Chief Office	40,747	39,176	39,689	49,296	61,303
Naval	1,401,659	1,426,988	1,506,897	1,562,029	2,367,748
Audit (proportion)	1,272	1,017	1,711	2,908	3,029
Pensions and retiring allowances	899	899	1,012	827	750
Rents, repairs, etc.	15,969	19,079	25,738	32,398	46,007
Interest on transferred properties	41,058	41,058	44,410	41,546	39,765
Interest on Commonwealth Securities	4,381	16,995	42,523	58,980	47,999
Sinking Fund, Commonwealth Securities	40	40	40	40	40
Miscellaneous	8,936	6,006	1,868	823	2,145
Total	1,514,961	1,551,258	1,663,888	1,748,847	2,568,786

16. **Postal.**—Full details of the expenditure of this Department are given in the table hereunder.

EXPENDITURE, POSTAL DEPARTMENT, 1916-17 TO 1920-21.

Details.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Chief Office	22,821	21,960	23,189	25,842	30,949
Postal Department (ordinary) ..	4,853,886	4,920,251	5,015,429	5,681,340	6,844,979
Audit (proportion)	2,981	2,635	2,888	6,224	8,182
Pensions and retiring allowances	55,877	59,174	64,720	67,842	75,057
Rents, repairs, etc.	67,494	60,070	60,756	62,415	86,824
Interest on transferred properties	217,602	212,227	210,908	214,815	186,070
Interest on Commonwealth Securities	40,539	42,150	46,420	52,832	49,562
Sinking Fund on Commonwealth Securities	16,271	16,271	16,271	16,271	16,193
Miscellaneous	11,527	15,256	9,141	9,339	7,427
Total	5,288,998	5,349,994	5,449,722	6,136,920	7,305,243

17. **Cost of the War.**—A substantial amount of the cost of the war has been paid out of consolidated revenue under the heading "War Services." The expenditure on the war from revenue has already been dealt with in the table on page 649, but a further table is here presented shewing the total expenditure from the different funds during the four years for which the war lasted up to 1917-18, and including also the period 1918-21, which contained the last four months of war, and the first portion of the reconstruction period.

COST OF WAR SERVICES TO COMMONWEALTH TO 30th JUNE, 1921.

Year.	From Consolidated Revenue.	From War Loan Fund.	Total.
	£	£	£
1914-15	640,217	14,471,118	15,111,335
1915-16	3,777,849	37,423,568	41,201,417
1916-17	8,421,654	53,114,237	61,535,891
1917-18	11,863,250	55,095,110	66,958,360
1918-19	21,255,101	62,192,889	83,447,990
1919-20	24,579,099	46,070,595	70,649,694
1920-21	30,464,247	26,859,446	57,323,693
Total	101,001,417	295,226,963	396,228,380

The following table gives the details of the war expenditure from Revenue for the last five years :—

WAR SERVICES EXPENDITURE FROM REVENUE, 1916-17 TO 1920-21.

Heading.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Special Appropriations—					
Interest, Commonwealth Loans	2,738,673	4,574,816	7,709,771	10,268,246	11,229,037
Interest, Imperial Loans	2,082,268	2,477,288	2,377,690	2,377,656	2,290,460
Sinking Fund, Commonwealth Loans	689,384	515,781	955,303	1,067,402	2,678,000
Sinking Fund, Imperial Loans	477,743	245,410	245,410	245,410	490,820
War Pensions, etc.	..	..	4,827,368	5,859,862	6,013,514
Annual Votes—					
Defence	550,377	532	310	497	172,325
Navy	686,701	..	272,608	143,274	824,212
Treasury	1,186,488	5,043,046	3,546,328	1,956,601	2,835,903
Prime Minister's Department	..	999,198	8,194	1,275	7,845
Trade and Customs	10,030	7,179	9,238	9,483	17,114
Repatriation .. ..	..	..	1,300,044	2,614,979	3,867,706
Works and Railways	..	..	2,837	34,414	(a) 37,261
Total	8,421,654	11,863,250	21,255,101	24,579,099	30,464,247

(a) Including £10,000 for Home and Territories Department.

The extremely large vote debited to the Treasury in 1918-19 includes £3,430,000, which represents two years' interest to the Imperial Government for the maintenance of troops. In 1919-20 it includes £1,816,000, and in 1920-21 £1,743,000, interest to the Imperial Government.

WAR EXPENDITURE FROM WAR LOAN FUND, 1916-17 TO 1920-21.

Department.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Defence	47,116,871	52,877,296	49,434,567	17,979,748	846,790
Navy	3,324,181	569,888	7,194,345	3,580,064	(a) 247,371
Treasury	386,743	1,128,907	5,314,153	15,379,318	15,330,886
Trade and Customs	111,822	12,778	39,141	(a) 41,680	(a) 54,601
Prime Minister	2,083,483	420,759	120,863	140,713	1,678,775
Home and Territories	91,137	85,482	4,458	36,531	7,199
Repatriation .. ..	..	..	85,362	8,090,614	6,593,924
Works and Railways	..	..	..	220,279	(a) 7,100
War Gratuities .. ..	..	..	..	685,008	2,710,944
Total	53,114,237	55,095,110	62,192,889	46,070,595	26,859,446

(a) Credit.

The largest item in the case of the Treasury in 1920-21 was an advance of £15,175,678 to the States and Papua for the purpose of settling returned soldiers on the land. The expenditure under the heading Repatriation was entirely incurred under the War Service Homes Act of 1918.

(D) Subsidy Paid to States.

1. **Payments to the Several States.**—In the following table are furnished particulars relative to the amounts actually paid to the several States on account of each of the financial years 1916–17 to 1920–21 :—

COMMONWEALTH SUBSIDY PAID TO STATES, 1916–17 TO 1920–21.

State.	1916–17.	1917–18.	1918–19.	1919–20.	1920–21.
	£	£	£	£	£
New South Wales	2,288,913	2,317,783	2,380,139	2,472,717	2,533,234
Victoria	1,722,409	1,739,481	1,764,239	1,847,085	1,878,449
Queensland	823,771	845,913	856,300	895,454	912,628
South Australia	531,340	535,808	549,593	578,094	588,603
Western Australia	569,982	561,129	556,505	569,512	564,735
Tasmania (a)	246,004	250,260	257,557	267,630	272,514
Total (a)	6,180,419	6,250,374	6,364,333	6,630,492	6,750,163

(a) Not including special grant to Tasmania.

The amounts of subsidy given in the preceding table are based upon an annual payment of £1 5s. per capita, with a special concession to Western Australia. This is in accordance with the provisions of the "Commonwealth Surplus Revenue Act" which was passed in 1910 and came into effect on the 1st July, for a period of ten years, after which it became subject to revision. This period expired on the 30th June, 1920, and it is now possible for Parliament to extend the Act for a further period, or to make new financial arrangements for a Commonwealth subsidy to the States. In the meantime the existing arrangement is being continued provisionally.

§ 3. Trust Fund and Miscellaneous.

1. **Trust Accounts.**—The Trust Fund credit balance on 30th June, 1921, amounted to £16,700,347, as compared with £82,375,522 for the corresponding date in the year ending 30th June, 1920. This enormous decline is the result of the transference of the administration of the Australian Notes Account to the Commonwealth Bank. Details concerning the most important trust accounts are contained in the following table :

COMMONWEALTH TRUST FUND, 30th JUNE, 1921.

Trust Accounts.	Balance at 30th June, 1921.	Trust Accounts.	Balance at 30th June, 1921.
	£		£
Admiralty	72,804	Naval Dockyard	33,811
Australian Soldiers Repatriation	147,391	New York Suspense Account	32,187
Commonwealth Steamers	22,939	Other Trust Funds	849,654
Defence—Clothing Material	134,465	Public Trustee	66,838
Small Arms	21,559	Railway Plant and Stores	64,591
Small Arms Ammunition	119,144	Ships Insurance	472,124
Deferred Pay	371,711	Small Arms Ammunition Factory	32,551
Detained Enemy Vessels	11,481	State Loans Suspense	70,561
General Average Deposits	11,767	Unclaimed Pay	15,596
Interest Imperial Government	3,934,191	War Loans Securities Repurchase	918,299
Insurance, Lost Enemy Vessels	446,904	War Pensions	2,200,623
International Post and Money Order	128,934	War Savings Certificates Interest	246,458
Invalid and Old-age Pensions	4,417,704	War Service Homes	19,516
Sinking Funds	1,004,527	Wireless Workshops	21,064
Molonglo Internment Camp	40,903	Miscellaneous	85,499
Money Order	674,500		
National War Histories	10,101	Total	16,700,347

2. **Australian Notes Account.**—This no longer appears as a Trust Account, the management having been transferred to the Commonwealth Bank in December, 1920. On 30th June, 1921, the notes issued and unredeemed amounted to £58,094,987. Against this there was a reserve of gold coin equal to £23,478,127½ or 40.41 per cent., and other assets of which the most important were investments amounting to £34,120,002.

3. **Advances by Commonwealth Government to States.**—Reference has been made in the previous paragraph to the investments constituting the assets of the Australian Notes Account. A large proportion has been advanced to the respective State Governments for short periods, sometimes as low as one year. This is an interesting departure in Australian Public Finance, and the following table is appended, giving full particulars of the investments of the £34,120,002, to which reference has already been made :—

**AUSTRALIAN NOTES ACCOUNT.—PARTICULARS OF INVESTMENT AS AT
30th JUNE, 1921.**

Investment.	Amount.	Rate of Interest.	Date of Maturity.	Amount of Interest.
	£	%		£
Commonwealth Inscribed Stock	3,014,716	3½	1962–1972	105,515
Commonwealth War Loan	63,640	4½	1925	2,864
New South Wales Treasury Bills	7,400,000	4½	1925	305,250
Victorian Debentures	588,000	6	Various	36,000
Victorian Debentures	3,900,000	4½	1925	160,875
Victorian Government Securities	583,000	5½	(a)	30,607
Queensland Government Securities	1,490,000	5½	(a)	78,225
South Australian Treasury Bills	2,600,000	4½	1925	107,250
South Australian Government Securities	326,000	6	(a)	19,560
Western Australian Stock	590,000	3½	1926	22,125
Western Australian Treasury Bills	3,100,000	4½	1925	127,875
Western Australian Government Securities	335,000	5½	(a)	17,587
Tasmanian Stock	300,000	3½	1921	11,250
Tasmanian Treasury Bills	1,000,000	4½	1925	41,250
Tasmanian Government Securities	469,000	5½	(a)	24,622
Tasmanian Stock	160,000	6	Various	9,600
Bank Deposits	8,200,646	3 to 6	(a)	(b) 369,029
Total	34,120,002	..	..	(b) 1,469,484

(a) Not fixed.

(b) Approximate.

4. **London Flotations on behalf of States.**—Act No. 17 of 1916 authorised the Treasurer to borrow £8,940,000 in the United Kingdom, and Act No. 16 of 1917 to raise £8,000,000, and to lend the amount to the several States, other than that of New South Wales, and, pending the borrowing of the money, to advance the amounts set forth in the Acts out of loans made by the Government of the United Kingdom to the Commonwealth. In pursuance of these Acts, £16,750,000 was distributed to the States up to 30th June, 1921. The money was allocated to the States as follows :—

**COMMONWEALTH LOANS RAISED IN LONDON ON BEHALF OF STATES
AS AT 30th JUNE, 1921.**

State.	£
Victoria	1,954,000
Queensland	5,462,500
South Australia	4,116,000
Western Australia	4,150,500
Tasmania	1,067,000
Total	16,750,000

In addition to these amounts, the Commonwealth Government has made further advances to the States for various purposes which are set out as follows, the amounts representing what was outstanding on 30th June, 1921 :—

	£	£
Government of New South Wales—		
Settling returned soldiers	6,257,009	
Silos for wheat storage	1,001,597	
Hospitals	77,001	
		7,335,607
Government of Victoria—		
Settling returned soldiers	10,705,601	
Reserve employment	53,400	
		10,759,001
Government of Queensland—		
Settling returned soldiers	2,067,998	
Reserve employment	300,000	
Forestry	40,156	
		2,408,154
Government of South Australia—		
Settling returned soldiers	2,335,039	
Reserve employment	28,796	
		2,363,835
Government of Western Australia—		
Settling returned soldiers	3,186,819	
		3,186,819
Government of Tasmania—		
Settling returned soldiers	1,858,521	
		1,858,521
Total		27,911,937

5. **Surplus Revenue.**—Until the end of 1906–7, the whole balance of the Consolidated Revenue Fund was paid to the States. From 1907–8, and until the abolition of the book-keeping provisions of the Constitution, the States received only three-fourths of the net Customs and Excise Revenue, and the balance of the Consolidated Revenue Fund was transferred to the Invalid and Old-age Pensions Trust Account, and the Naval Defence Trust Account, to provide for expenditure in subsequent years. A statement of surpluses and deficiencies for the past five years is hereto appended.

COMMONWEALTH SURPLUS REVENUE, 1916–17 TO 1920–21.

Year.	Surplus.	Deficiency.	Accumulated Surplus at end of Year.
	£	£	£
1916–17 .. .. .	..	922,573	2,077,427
1917–18	1,848,393	..	3,925,820
1918–19 .. .. .	..	402,763	3,523,057
1919–20	2,201,749	..	5,724,806
1920–21	893,521	..	6,618,327

§ 4. Commonwealth Public Debt.

Although it was not until 1915 that the Federal Government appeared before the public as a direct borrower, there had been a Commonwealth Public Debt for many years. It now includes several items, such as the balance of the debt taken over from South Australia, the money owing to the States for transferred properties, the Commonwealth General Loan Fund, the loans for military purposes, etc. In view of the large expansion of the Public Debt, and its present importance in Commonwealth public finance, the different items are treated seriatim in the sub-sections that follow.

1. **Loans Taken Over from South Australia.**—The first portions of the debt were contracted at the beginning of 1911, when the Commonwealth assumed responsibility for the administration and the liabilities of the Northern Territory and the Port Augusta-Oodnadatta Railway. At 30th June, 1911, the debt on account of the former was £3,657,836, and on account of the latter, £2,274,486—a total of £5,932,322. As the securities fall in they are redeemed by the Commonwealth Government, the money required being taken from the Loan Fund, which was created for this purpose, amongst others. This item is thus a constantly diminishing one, and on 30th June, 1921, stood at £3,968,297, of which £2,209,294 was on account of the Northern Territory, and £1,759,003 on account of the railway.

2. **Loan Fund for Public Works, etc.**—Up to 1911 the Commonwealth Government had met its Public Works expenditure out of Revenue. In that year, however, in view of the heavy prospective cost of the Transcontinental Railway and the Federal Capital Territory, it was decided to initiate a Loan Fund similar to those of the States. The flotation of this Fund was greatly assisted by the fact that the Treasury at this time held a large quantity of gold, principally on behalf of the Australian Notes Account, at that time only just inaugurated. Up to 30th June, 1914, the money required for loan expenditure was taken mainly from this account at 3½ per cent., and inscribed stock of an equivalent value created. Since the outbreak of war the money required for the Loan Fund has been mainly obtained by the issue of Treasury Bills. The details of the expenditure for the last five working years are given in the following table. There were no transactions in 1916–17.

**COMMONWEALTH LOAN EXPENDITURE FOR WORKS, ETC., DETAILS,
1916 TO 1921.**

Particulars. (b)	1915-16.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Railways Construction—					
Trans-Australian Railway	1,646,953	410,596	156,187	138,164	76,009
Northern Territory	126,592	42,178	1,226d	2,539	1,654
Other .. ..	..	4,200	2,193	91d	4,258
Loan Redemption—					
Oodnadatta Railway	923	..	..	..	..
Northern Territory	400,000	..	339,408	..	223,814
Papua—Railways and Wharves	12,829	..	..	..	20,000
Posts and Telegraphs—					
Purchase of land	92,712	2,811	1,692	596d	920
Construction of conduits	271,211	67,375	116,760	305,538	21,635
Acquisition of land (a)—					
London	113,744	69,991	46,120	58,611	55,727
Perth .. ..	..	24,347	18,291	23,073	21,644
Federal Territory	127,537	90,703	1,395	11,968	83,232
Elsewhere (c) .. ..	..	37,622	67,448	37,375	5,474
Defence Machinery; Dockyards, Cockatoo Island; Naval Bases, etc.	66,840	375,913	510,318	282,044	305,721
Ship Construction .. ..	..	355,397	..	..	2,999,630
General Arsenal; Small Arms, etc.; Cordite .. ..	..	27,253	58,761	350,616	153,083
Lighthouses .. ..	..	42,473	16,115	26,795	29,746
Contribution under River Murray Waters Act .. ..	..	..	55,760	39,241	56,722
Acetate of Lime Factory .. ..	..	52,410	18,001	..	2,420
Plant and Stores Suspense Account .. ..	..	200,000	..	..	..
Wireless Telegraphy .. ..	..	118	22,668	11,509	..
Miscellaneous .. ..	..	..	..	..	40,037
Total	2,859,341	1,803,447	1,429,891	1,286,786	4,101,726

(a) Including cost of erection of buildings.
Works Construction were made from Revenue.

(b) No transactions in 1916–17. Payments for
(c) Excluding purchases for Posts and Telegraphs.

(d) Credited by repayment.

3. **Properties Transferred from States.**—At the time of Federation, when the Commonwealth took over the control of a great many departments which had previously been administered by the States, a large amount of property was handed over to the

Commonwealth Government. A valuation was made, with results set out in detail in Official Year Book No. 14, page 694, and the Commonwealth now pays interest to the States on account of all the transferred properties.

Since the valuation some transfers and retransfers have been made. The estimated value of the transferred properties for the last five years is given in the table in sub-section 6 hereinafter.

4. War Loan from the Imperial Government.—On the outbreak of the European war in 1914, the Commonwealth Government contracted a loan from the Imperial Government for the purpose of financing the large military expenditure which was seen to be inevitable. At first, the arrangement was that the Imperial Government should advance the sum of £18,000,000 in twelve monthly instalments of £1,500,000 each. It was soon found, however, that this would be insufficient, and consequently the Imperial Government made a fresh advance of £6,500,000, also to be paid in monthly instalments. A third loan of £25,000,000 was subsequently negotiated, of which £12,000,000 was received by 30th June, 1916, and £11,000,000 in 1916–17. In addition to this capital indebtedness, a further sum of £42,696,500 is due to the British Government for the maintenance of Australian troops.

The last item of nearly £43,000,000 remained unfunded until early in 1921. An arrangement was then concluded with the Imperial Government, by means of which almost the entire debt (nearly £92,500,000) was consolidated. The Commonwealth Government undertook to extinguish the debt by annual payments of approximately £5,550,000, spread out over about 35 years, this payment representing 6 per cent. of the original debt. This provides for interest at nearly 5 per cent., and a sinking fund of a little more than 1 per cent., and may be regarded as a very satisfactory arrangement for the Commonwealth, since it entails only a moderate rate of interest, and provides for the ultimate extinction of nearly one-fourth of the National War Debt. The amount outstanding on 30th June, 1921, was £92,480,156, which will diminish steadily year by year owing to the operation of the sinking fund.

5. Flotation of War Loans in Australia.—In addition to the advances from the Imperial Government, the Commonwealth Government has raised large amounts of money for the prosecution of the war, by direct application to the investing public of Australia.

Full details of the seven War Loans and the first Peace Loan are given in Official Year Book No. 14. In the financial year 1920–21 a second Peace Loan was floated with a currency of 10½ years and a rate of interest of 6 per cent. Particulars of the first nine issues are given in the table hereunder:—

PARTICULARS OF LOCAL AUSTRALIAN LOANS, TO 30th JUNE, 1921.

Number of Issue.	Number of Subscribers.			Amount Subscribed.		
	Inscribed Stock.	Treasury Bonds.	Total.	Inscribed Stock.	Treasury Bonds.	Total.
				£	£	£
1st War Loan	8,603	10,145	18,748	9,581,120	3,808,320	13,389,440
2nd War Loan	12,450	16,495	28,945	16,271,710	5,383,970	21,655,680
3rd War Loan	13,660	88,382	102,042	15,417,880	8,169,770	23,587,650
4th War Loan	13,666	53,806	67,472	14,695,240	6,888,780	21,584,020
5th War Loan	9,882	31,826	41,708	14,276,790	6,936,990	21,213,780
6th War Loan, 4½ per cent.	17,781	72,526	90,307	14,169,600	22,157,780	36,327,380
6th War Loan, 5 per cent.	8,549	45,008	53,557	4,441,470	2,182,270	6,623,740
7th War Loan	16,303	226,891	243,194	14,886,730	29,197,020	44,083,750
1st Peace Loan	9,208	87,666	96,774	11,474,690	13,550,680	25,025,370
2nd Peace Loan	8,913	52,635	61,548	12,372,040	14,240,520	26,612,560
Total	119,015	685,280	804,295	127,587,270	112,516,100	240,103,370

PARTICULARS OF LOCAL AUSTRALIAN LOANS, TO 30TH JUNE, 1921—*continued.*

Number of Issue.	Deductions.			Net Proceeds of Loan.	Amount required.
	Accrued Interest.	Flotation Expenses.	Total.		
	£	£	£	£	£
1st War Loan	221,502	35,451	256,953	13,132,487	5,000,000
2nd War Loan	324,169	50,652	374,821	21,280,859	10,000,000
3rd War Loan	326,887	52,278	379,165	23,208,485	No definite amount
4th War Loan	254,071	45,795	299,866	21,284,154	13,000,000
5th War Loan	239,319	53,317	292,636	20,921,144	20,000,000
6th War Loan, 4½ per cent. ..	423,589	103,403	526,992	35,800,388	} 40,000,000
6th War Loan, 5 per cent. ..	72,767	18,854	91,621	6,532,119	
7th War Loan	361,010	140,410	501,420	43,582,330	40,000,000
1st Peace Loan	456,440	98,835	555,275	24,470,095	25,000,000
2nd Peace Loan	117,285	109,318	226,603	26,385,957	25,000,000
Total	2,797,039	708,313	3,505,352	236,598,018	..

6. **Total Commonwealth Public Debt.**—Separate consideration has now been given to the items composing the Public Debt. The table appended to this sub-section shows the entire debt of the Commonwealth (apart from the States) at yearly intervals since 1917.

PUBLIC DEBT OF THE COMMONWEALTH AS AT 30th JUNE, 1917 TO 1921.

Details.	1917.	1918.	1919.	1920.	1921.
	£	£	£	£	£
Balance of loans taken over from South Australia—					
(a) On account of Northern Territory	2,772,516	2,772,516	2,433,108	2,433,108	2,209,294
(b) On account of Oodnadatta railway	1,759,003	1,759,003	1,759,003	1,759,003	1,759,003
Value of properties transferred by States	10,789,739	11,202,515	11,202,619	11,440,462	11,536,139
Inscribed Stock	4,580,000	4,580,000	4,580,000	4,580,000	8,764,716
Treasury Bills	4,437,543	6,240,990	7,670,881	9,815,600	8,094,153
War Loan from British Government	47,774,269	49,082,059	49,082,059	49,082,059	92,480,156
Commonwealth Internal Loans	80,242,510	143,190,680	184,437,870	207,184,380	232,819,660
Accrued Deferred Pay, A.I.F.	9,373,977	10,309,908	5,500,000	260,000	14,720
Loans raised on behalf of States	7,500,000	12,000,000	16,750,000	16,750,000	16,750,000
Gratuities .. ..	..	..	..	30,000,000	25,279,925
Miscellaneous .. ..	..	42,917,398	42,355,207	48,005,293	2,012,258
Total	169,229,557	284,055,069	325,770,747	381,309,905	401,720,024
Commonwealth Debt <i>per capita</i>	£34 11 3	£57 0 8	£63 7 6	£71 19 0	£73 12 9

It will be noticed that the amount of the Commonwealth Internal Loans falls somewhat short of the totals of the nine issues in the table on page 661. This is owing to the fact that stock to a considerable amount has been presented as payment of Estate Duty, and cancelled, the payments being accepted in accordance with the provisions of section 5 of the Commonwealth Inscribed Stock Act 1915. The amount of £232,819,660 is the balance of the first nine issues. To this must be added £2,004,870 raised by the sale of War Savings Certificates, and £7,388 by the sale of War Savings Stamps. The item "Miscellaneous" is made up of the last two amounts.

7. **Place of Flotation.**—The loans taken over from South Australia, which constituted the first portion of the Federal Public Debt, included both London and Australian securities. The presence in the Treasury of a large holding of gold, and the moderate rate of interest ruling on gilt-edged securities, made the conditions in 1911, and for some little time afterwards, very favourable for the flotation of local loans. London securities were redeemed as they fell due, and replaced by the 3½ per cent. stock of the Loan Fund. Consequently, up to 1914 the amount of the securities repayable in London fell steadily, and the amount repayable in Australia rose rapidly. In 1915 the military loan from the Imperial Government caused a sharp rise in the amount of the

securities repayable in London, which was maintained in the two following years. This was, however, more than offset by the flotation of the local war loans. Appended is a table shewing particulars of the loans of the Commonwealth for five financial years which have been floated in London and Australia respectively. A separate column is reserved for the cost of the transferred properties, which, for obvious reasons, it is impossible to allocate.

COMMONWEALTH PUBLIC DEBT.—LONDON AND AUSTRALIAN FLOTATIONS, 1917 TO 1921.

Year ended 30th June—	Payable in—		Value of Transferred Properties.	Total.
	London.	Australia.		
	£	£	£	£
1917	58,426,312	100,013,506	10,789,739	169,229,557
1918	102,579,102	170,273,452	11,202,515	284,055,069
1919	106,123,102	208,445,026	11,202,619	325,770,747
1920	111,680,602	258,188,841	11,440,462	381,309,905
1921	112,382,199	277,801,686	11,536,139	401,720,024

8. **Rates of Interest.**—When the first debt was taken over from South Australia it consisted in the main of a mass of securities varying from 3 per cent. to 4 per cent., the average rate of interest for the first year being £3 12s. 4d. For the first three years the increase in the debt was due almost entirely to the expansion of the 3½ per cent. stock of the Loan Fund, and as a consequence the average rate of interest fell steadily, until on 30th June, 1914, it stood at £3 11s. 10d. Then came the loans for military purposes, and the fall in the average rate was ultimately converted into a rise which is almost certain to be maintained, since there is not likely to be any further borrowing for some time at a rate of less than 5 per cent. In fact, the influence of the heavy borrowing of the last five years at high rates is already reflected in the rise of the average rate of interest. It is notoriously difficult to forecast the future of the rate of interest, but the influence of the large Imperial War Loans on gilt-edged securities has been so far-reaching, that in all probability for some years the average rate of interest on the Federal Public Debt will rise continuously.

The accompanying table gives full particulars concerning the interest for the five financial years ended 30th June 1921 :—

RATES OF INTEREST ON COMMONWEALTH PUBLIC DEBT, 1917 TO 1921.

Rates of Interest.	Year ended 30th June—				
	1917.	1918.	1919.	1920.	1921.
%	£	£	£	£	£
Not bearing interest ..	9,373,977	..	..	..	..
3 ..	35,063	35,063	35,063	35,063	35,063
3½ ..	16,804,654	17,217,430	17,217,534	17,455,377	15,469,528
£3/12/3 ..	720,411	720,411	720,411	720,411	720,411
3¾ ..	1,394,008	1,394,008	1,054,600	1,054,600	833,870
4 ..	6,647,823	8,451,270	9,881,161	12,025,880	8,304,433
4½ ..	101,353,621	200,261,846	192,766,897	192,130,633	126,769,038
5 ..	25,400,000	43,975,041	87,345,081	111,137,941	157,056,366 ^a
5½ ..	4,000,000	4,000,000	4,000,000	34,000,000	29,279,925
5¾ ..	3,500,000	8,000,000	12,750,000	12,750,000	12,750,000
5¾ ..	..	..	..	..	2,000,000
6 ..	..	..	..	..	48,501,390
Total ..	169,229,557	284,055,069	325,770,747	381,309,905	401,720,024
Average rate of interest	£4/4/8	£4/10/9	£4/12/2	£4/13/7	£4/18/4

(^a) Including the debt to the Imperial Government, the interest on which (apart from the sinking fund) is nearly 5 per cent.

A table is appended shewing the amounts payable as interest on the Commonwealth Public Debt as at 30th June in the years 1917–21 inclusive. The rapid increase is due not only to the great expansion of the War Loan Fund, but also to the high rate of interest on recent loans.

AMOUNT OF INTEREST PAYABLE ON COMMONWEALTH PUBLIC DEBT AS AT 30th JUNE—

Year.	£
1917	7,166,105
1918	12,879,793
1919	15,017,497
1920	17,847,623
1921	19,752,912

9. *Dates of Maturity.*—A table is appended giving the dates of maturity of the several portions of the Commonwealth debt. The Commonwealth Government has refrained from issuing interminable stock, although as regards about one-fifteenth of the debt no definite date of maturity had been assigned on 30th June, 1921. It will be noticed that about £227,000,000 falls due in the space of four years, 1923–27, the bulk of this being represented by the balance of the first eight internal loans.

DUE DATES OF THE COMMONWEALTH PUBLIC DEBT OUTSTANDING ON 30th JUNE, 1921.(a)

Due Dates.	Amounts.	Due Dates.	Amounts.	Due Dates.	Amounts.
	£		£		£
1921 ..	2,500,624	1935 ..	2,035,683	1949 ..	3,854,253
1922 ..	5,038,596	1936 ..	2,633,583	1950 ..	4,046,080
1923 ..	40,420,746	1937 ..	2,151,835	1951 ..	4,247,875
1924 ..	20,375,781	1938 ..	2,258,932	1952 ..	4,459,293
1925 ..	75,694,041	1939 ..	3,231,639	1953 ..	4,681,233
1926 ..	1,327,965	1940 ..	2,489,383	1954 ..	4,914,219
1927 ..	89,583,388	1941 ..	7,613,280	1955 ..	5,158,801
1928 ..	1,389,826	1942 ..	2,743,344	1956 ..	4,042,238
1929 ..	1,458,998	1943 ..	2,879,881	1972 ..	3,764,716
1930 ..	45,783,953	1944 ..	3,023,214	Indefinite ..	27,314,705
1931 ..	1,607,842	1945 ..	3,173,680		
1932 ..	1,687,865	1946 ..	3,331,635		
1933 ..	1,771,870	1947 ..	3,497,451		
1934 ..	1,860,056	1948 ..	3,671,520	Total ..	401,720,024

(a) Those loans in the case of which the Government has the option of redemption during a specified period have been in each case classified according to the latest date of maturity.

On pages 671 to 674 will be found a series of graphs illustrating the rise in the revenue, public debt, and taxation of the Commonwealth and States since 1902, the year 1901–2 being the first complete financial year since Federation.

10. *Sinking Fund.*—The Commonwealth Government has followed the usual practice in establishing a sinking fund against most of the securities which constitute its public debt. Part of the inscribed stock issued for works purposes carries a sinking fund of 5 per cent., and the remainder one of $\frac{1}{2}$ per cent. The internal issues carry sinking funds, partly of $\frac{1}{2}$ per cent., and partly of 1 per cent. The War Savings Certificates carry a sinking fund of $\frac{1}{2}$ per cent., and the Northern Territory and Port Augusta–Oodnadatta Railway loans one of $\frac{1}{4}$ per cent. These sinking funds are invested partly in Treasury

Bills, partly in Commonwealth Inscribed Stock, and partly in Bonds (War Issues). The situation of the Sinking Funds, as at 30th June, 1921, is set out in the accompanying table :—

COMMONWEALTH SINKING FUNDS, 1917 TO 1921.

30th June—	Total Accumulation.	Total Securities Cancelled.	Balance.
	£	£	£
1917 ..	1,611,903	598,854	1,013,049
1918 ..	2,454,235	1,087,252	1,366,983
1919 ..	3,740,824	1,636,621	2,104,203
1920 ..	5,139,281	2,969,980	2,169,301
1921 ..	8,391,349	7,386,822	1,004,527

The Imperial Government loan will now come in a different category from the others since it is being liquidated by the funding arrangement described in detail on page 661.

§ 5. Budget of 1922-23.

1. **Introductory.**—This Budget was opened before the House of Representatives on 17th August, 1922, a date so early that it is possible to give a summary of its more salient features in this issue of the Official Year Book. In connexion with the statements which follow it must be remembered, however, that the figures for 1921-22 are not final, but subject to a slight revision, whilst the figures for 1922-23 are estimates.

2. **Revenue and Expenditure.**—Excluding the amounts paid as subsidy to the States, the Consolidated Revenue Account stands as follows :—

COMMONWEALTH REVENUE AND EXPENDITURE.

Particulars.	1921-22.	1922-23 (Estimated).
	£	£
Net Revenue	57,861,511	52,163,250
Expenditure	58,071,414	54,868,693
Deficit	209,903	2,705,443
Surplus carried forward	6,408,424	3,702,981

The large apparent deficit estimated in 1922-23 demands an explanation. The Government, with a large surplus of more than £6,400,000 in hand, decided to apply one-half of it in remission of taxation, and thus reduce their net revenue by the sum of £3,200,000. The main concessions were to the payers of direct taxes, particularly income tax, but there was also a reduction of duties on galvanized iron, iron and steel wire, wire netting, and tractors, for which a bounty to local manufacturers was substituted.

3. **Remission of Taxation, etc.**—The estimated reduction of £3,200,000 in the net revenue, to which reference was made in the previous paragraph, is made up of the following items :—

	£
Increase in maximum exemption for income tax purposes to £200	600,000
Ten per cent. reduction of income tax	1,300,000
Reduction in companies' rate of tax	200,000
Removal of war surcharge on land tax	400,000
Entertainment tax reduction	100,000
Reduction of duties	350,000
Payment of bounty	250,000
	<u>3,200,000</u>

4. **Details of Revenue.**—The following table gives details of the more important items of Revenue for the two years :—

COMMONWEALTH NET REVENUE.

Particulars.	1921-22.	1922-23 (Estimated).
	£	£
Taxation—		
Customs	17,328,310	17,500,000
Excise	10,302,049	10,500,000
Land Tax	2,284,040	2,150,000
Income Tax	16,790,682	15,250,000
Succession Duties	991,378	1,050,000
War-time Profits Tax	1,306,708	700,000
Entertainments Tax	675,675	650,000
Total Taxation	49,678,842	47,800,000
Post Office	9,320,654	9,650,000
Miscellaneous	5,897,550	5,068,250
Gross Revenue	64,897,046	62,518,250
Less Subsidy to States	7,035,535	7,155,000
Less Adjustment .. .. .	..	3,200,000
Net Revenue	57,861,511	52,163,250

5. **Details of Expenditure.**—The following table shows the details of expenditure for the two years :—

COMMONWEALTH EXPENDITURE.

Particulars.	1921-22.	1922-23 (Estimated)
	£	£
Ordinary Expenditure	25,823,000	24,492,002
War Expenditure	31,337,164	29,465,441
Interest	911,250	911,250
Total	58,071,414	54,868,693

6. **Public Debt.**—This amounted on 30th June, 1922, to £416,070,509, as set out in the following statement :—

<i>War Debt.</i>				£
Local Inscribed Stock and Bonds .. .. .	..	..	..	241,879,840
War Savings Certificates and Stamps .. .. .	..	..	..	1,153,472
War Gratuities .. .. .	..	..	..	23,088,153
Registered Stock .. .. .	..	..	..	10,000,000
Debt to Imperial Government .. .. .	..	..	..	91,453,288
Total War Debt .. .. .	..	..	..	367,574,753
<i>Other Debt.</i>				
Loans raised for States .. .. .	..	..	..	16,750,000
Registered Stock for Works, etc. .. .. .	..	..	..	10,000,000
Transferred Properties .. .. .	..	..	..	11,186,169
Inscribed Stock .. .. .	..	..	..	3,764,716
Treasury Bills .. .. .	..	..	..	2,843,125
Balance of loans taken over from South Australia .. .. .	..	..	..	3,951,746
Total Other Debt .. .. .	..	..	..	48,495,756
Total Public Debt .. .. .	..	..	..	416,070,509

7. **Cost of War Services.**—These are set out for the two years under review as follows :—

COST OF WAR SERVICES.

Particulars.	1921-22.	1922-23 (Estimated).
	£	£
Under Ordinary Votes and Appropriations ..	31,337,164	29,465,441
From War Loan Fund	7,576,977	10,340,893
Total	38,914,141	39,806,334

8. **Expenditure from Loan Fund.**—This is set out for the two years under review as follows :—

EXPENDITURE FROM LOAN FUND.

Particulars.	1921-22.	1922-23 (Estimated).
	£	£
War Loan	7,576,977	10,340,893
Works Loan	5,246,503	6,910,031
Total	12,823,480	17,250,924

9. **Miscellaneous.**—A few items of general interest are worthy of mention at the end of this summary. A special payment of £85,000 was made to Tasmania in continuance of the ten years' special allowance which expired in 1921-22. A sinking fund of $\frac{1}{2}$ per cent. was set aside to provide for the extinction in about 50 years of all the War Debt except that owing to the Imperial Government.

SECTION XX.

STATE FINANCE.

§ 1. General.

1. **Functions of State Governments.**—In any comparison of the finances of the several States due recognition must be made of the actual functions assumed by the respective Governments, and of the local conditions and requirements in each case. Direct comparisons of public expenditure are thus rendered difficult, owing to the fact that functions which in one State are assumed by the Central Government are in another State relegated to local governing bodies, and further by the fact that costly developmental work may, under certain conditions, be not only economically justifiable, but may be an essential of progress, whilst parsimonious expenditure may be a serious economic blunder. A large expenditure may, therefore, be an indication either of gross extravagance and bad economy on the one hand, or of healthy and vigorous progress and good economy on the other.

Similarly, as regards revenue, imposts which in some States are levied by the Central Government, are in others considered as matters to be dealt with locally. Under these circumstances care is needed in instituting comparisons between the several States, and the particulars contained in this section should be read in connexion with those contained in the section dealing with Local Government. It should also be noted that in many ways the budgets of the Australian Governments differ materially from those of most European countries, owing to the inclusion therein of the revenue and expenditure of departments concerned in rendering public services, such for instance as railways, tramways, water supply, etc., which in other countries are often left to private enterprise.

2. **Accounts of State Governments.**—The various financial transactions of the States are in each case concerned with one or other of three Funds—the “Consolidated Revenue Fund,” the “Trust Funds,” and the “Loan Funds.” All revenue collected by the State is placed to the credit of its Consolidated Revenue Fund, from which payments are made under the authority of an Annual Appropriation Act passed by the Legislature, or by a permanent appropriation under a special Act. The hypothecation of the revenue from a specific tax to the payment for some special service is not practised in Australia, all statutory appropriations ranking on an equality as charges on the Consolidated Revenue Fund. The Trust Funds comprise all moneys held in trust by the Government, and include such items as savings banks funds, sinking funds, insurance companies’ deposits, etc. The Loan Funds are credited with all loan moneys raised by the State, and debited with the expenditure therefrom for public works or other purposes.

3. **Inter-relation of Commonwealth and State Finance.**—The principal alteration in State finance, brought about by Federation, has been that the States have transferred to the Commonwealth the large revenue received by the Customs and Postal Departments and have been relieved of the expenditure connected with these and the Defence Departments, while, in their place, a new item of State revenue has been introduced, viz., the payment to the States of a Commonwealth subsidy. Provision for the taking over by the Commonwealth of certain of the public debts of the States is made in section 105 of the Constitution, and a proposed law extending this provision to the whole of the State indebtedness, which passed both Houses of the Federal Legislature by the statutory majority, was submitted to a referendum at the election in April, 1910, and received the requisite endorsement by the electorate. No action has as yet been taken, although the subject has, on more than one occasion, been under discussion.

§ 2. State Consolidated Revenue Funds.

(A) Receipts.

1. **Sources of Revenue.**—The principal sources of State revenue are :—

- (a) Taxation.
- (b) The public works and services controlled by the State Governments.
- (c) Sale of and rental from Crown lands.
- (d) The Commonwealth subsidy.
- (e) Miscellaneous sources, comprising fines, fees, interest, etc.

Of these sources, that yielding the largest revenue for the States as a whole is the group of public works and services, the principal contributor being the Government railways and tramways. Next in magnitude comes Taxation, followed in order by the Commonwealth Subsidy and Land Revenue.

2. **Amount Collected.**—The following table furnishes particulars of the total amount of consolidated revenue received by the several States during the five years 1916-17 to 1920-21 :—

STATE REVENUE, 1916-17 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1916-17	20,537,835	11,813,879	7,880,893	4,874,603	4,577,007	1,369,368	51,053,585
1917-18	21,577,229	12,672,787	8,491,482	5,526,226	4,622,536	1,503,047	54,393,307
1918-19	23,448,166	13,044,088	9,415,543	5,798,313	4,944,850	1,581,984	58,232,944
1919-20	28,650,496	15,866,184	11,293,743	6,582,788	5,863,501	1,815,031	70,071,743
1920-21	34,031,396	19,054,475	12,601,031	7,151,366	6,789,565	2,105,449	81,733,282

The figures given in this table relate in each instance to the financial year ended 30th June.

During the five years from 30th June, 1916, to 30th June, 1921, the aggregate revenues of the States increased by no less a sum than £30,679,697, or about 60 per cent. Increases were in evidence in all the States, the largest being that of £13,493,561 in New South Wales. This general advance is the more notable since, during recent years, a much smaller amount has been received from the Commonwealth, in the way of subsidy, than was the case up to 1910.

3. **Revenue per Head.**—Details concerning the revenue per head of population collected in the several States of the Commonwealth during the five years 1916-17 to 1920-21, are furnished in the table given hereunder. It will be seen that throughout the period Western Australia has collected by far the largest amount per head, and that Tasmania has collected the least.

STATE REVENUE PER HEAD OF POPULATION, 1916-17 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1916-17	10 17 11	8 16 2	11 12 6	11 0 7	14 18 7	7 0 0	10 7 7
1917-18	11 4 10	8 18 10	12 7 0	12 7 4	15 1 8	7 11 9	10 18 4
1918-19	11 19 1	9 1 6	13 6 11	12 13 4	15 19 3	7 15 11	11 9 2
1919-20	14 1 2	10 11 1	15 6 3	13 13 4	17 18 2	8 12 11	13 4 2
1920-21	16 5 6	12 9 4	16 15 0	14 11 2	20 10 6	9 17 10	15 2 0

In all the States, during the period, with the exception of Western Australia, there has been a marked increase in the State revenue collections per head, the most noticeable advance being in the case of Queensland. Western Australia throughout the period has led the other States, and in 1920-21 the revenue per head in that State exceeded the Commonwealth average by about 36 per cent.

4. Details for 1920-21.—Classifying the revenue of the several States in the manner indicated in § 2 (A) 1 above, particulars for the year 1920-21 are as follows:—

DETAILS OF STATE REVENUE, 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
Taxation ..	7,388,133	3,846,833	3,682,642	1,622,076	955,359	708,603	18,203,646
Public works and services ..	21,217,399	10,841,568	5,508,743	4,169,459	3,758,688	816,043	46,311,900
Land ..	2,151,465	538,781	1,640,624	296,494	437,266	103,064	5,167,644
Commonwealth subsidy ..	2,533,234	1,878,449	910,632	588,603	564,735	(a)362,514	6,838,167
Miscellaneous ..	741,165	1,948,894	858,390	474,734	1,073,517	115,225	5,211,925
Total ..	34,031,396	19,054,475	12,601,031	7,151,366	6,789,565	2,105,449	81,733,232

(a) Including special grant of £90,000.

It will be noted that the amounts returned under the heading "Commonwealth subsidy" do not always agree with those given in the chapter on Commonwealth Finance, page 657. This arises from the fact that the State figures shew the amount for which credit was taken by the State during the financial year 1920-21, whilst the Commonwealth figures shew the amounts paid to State Treasurers on account of that financial year.

5. Revenue per Head, 1920-21.—Particulars concerning the revenue per head of population in each State derived from the several sources enumerated in the preceding sub-section are given hereunder:—

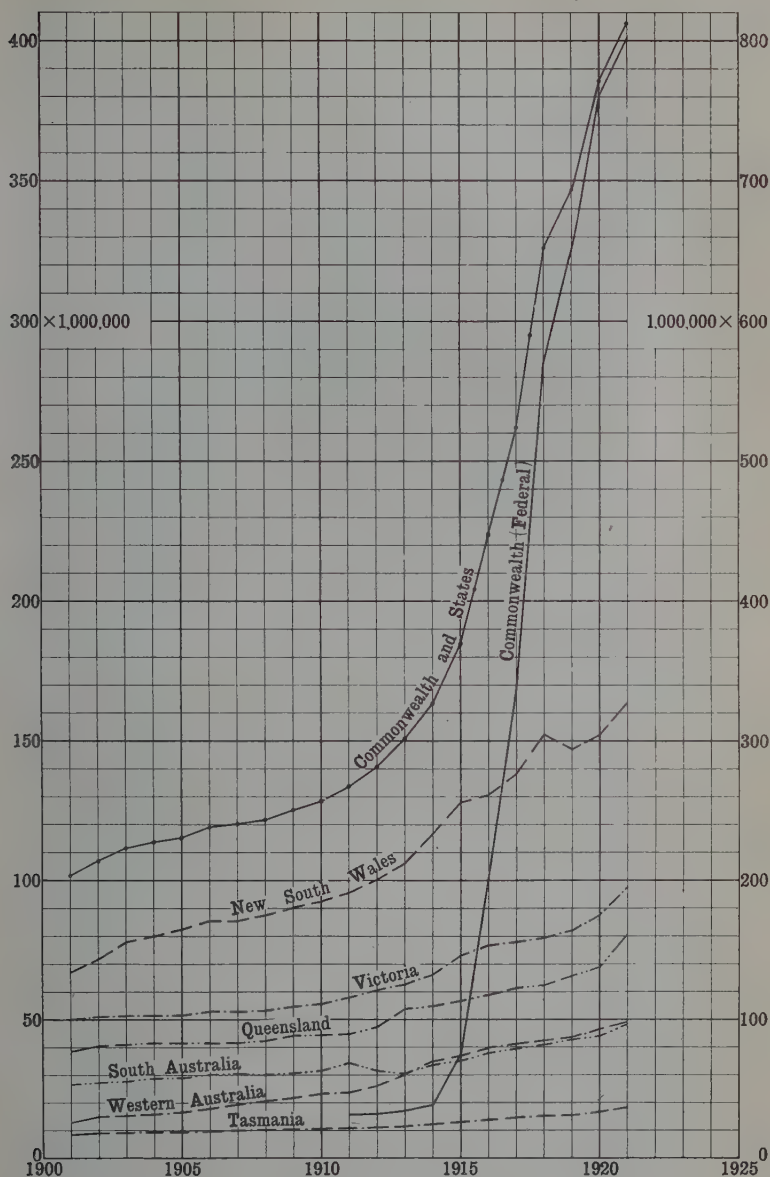
STATE REVENUE FROM VARIOUS SOURCES PER HEAD OF POPULATION, 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Taxation ..	3 10 8	2 10 4	4 17 11	3 6 0	2 17 9	3 6 7	3 7 3
Public Works and services ..	10 2 11	7 1 11	7 6 6	8 9 9	11 7 3	3 16 8	8 11 2
Land ..	1 0 7	0 7 1	2 3 7	0 12 1	1 6 5	0 9 8	0 19 1
Commonwealth subsidy ..	1 4 3	1 4 6	1 4 2	1 4 0	1 14 2	1 14 1	1 5 3
Miscellaneous ..	0 7 1	1 5 6	1 2 10	0 19 4	3 4 11	0 10 10	0 19 3
Total ..	16 5 6	12 9 4	16 15 0	14 11 2	20 10 6	9 17 10	15 2 0

The magnitude of the revenue per head from public works and services in the case of Western Australia is mainly due to the fact that the number of miles of railway in that State is large compared with the population, while the revenue-earning power of the railways is also high.

6. Relative Importance of Sources of Revenue.—The following table furnishes an indication of the relative importance of the different sources of revenue in the several

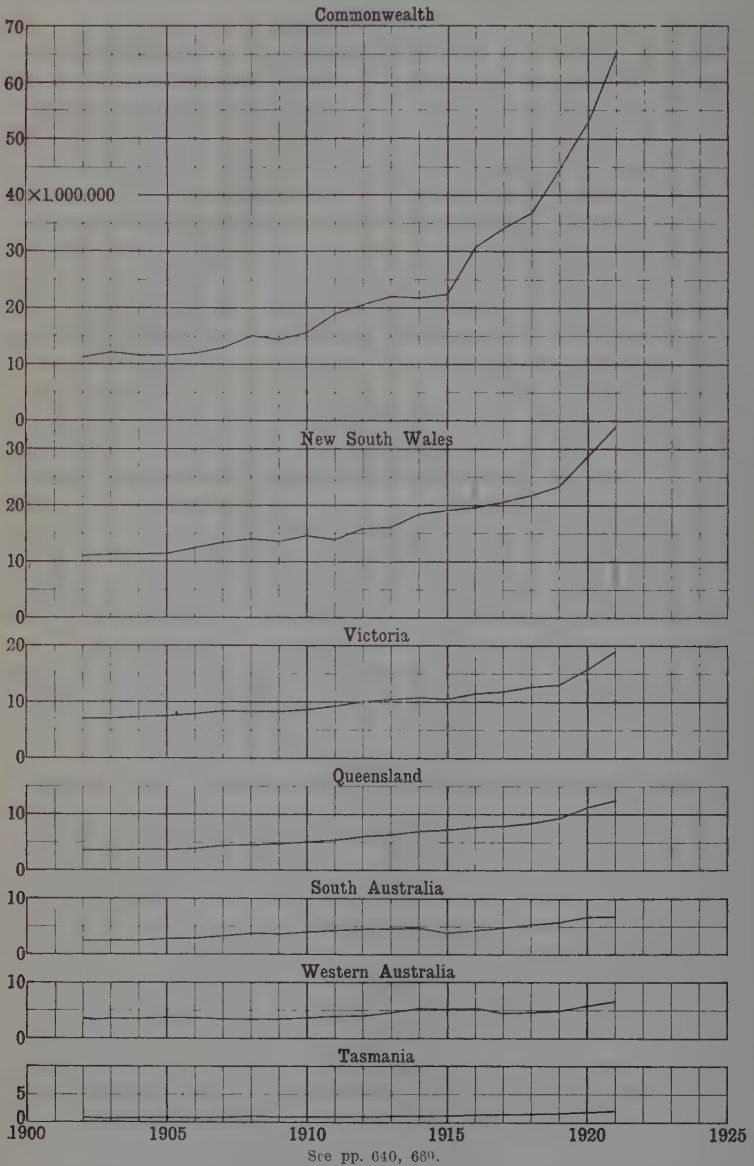
AUSTRALIAN PUBLIC DEBT—COMMONWEALTH AND STATES, 1900-1 TO 1920-21.



See pp. 662, 686.

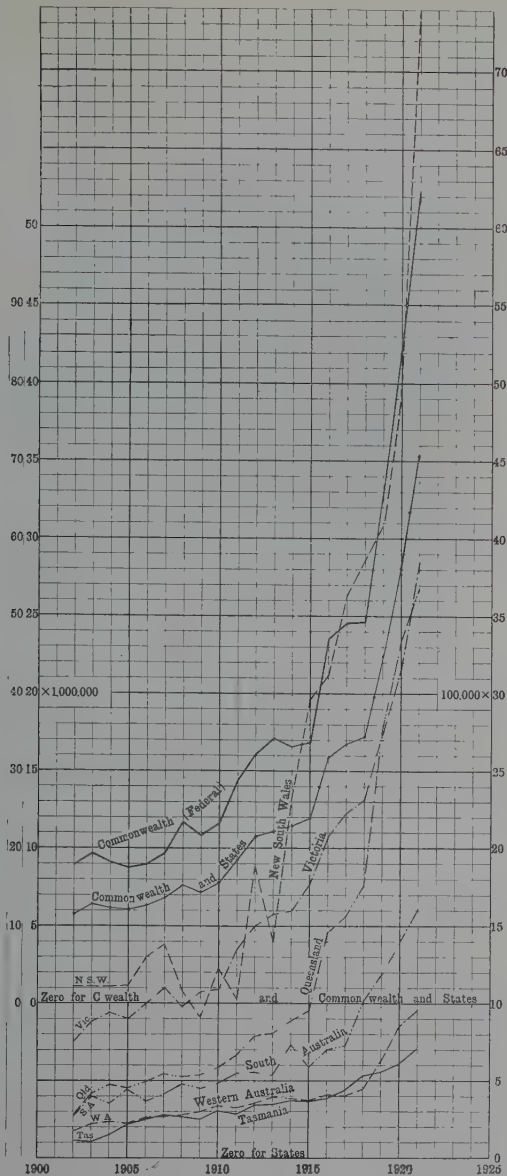
EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year, while the vertical height represents £10,000,000 in the case of the Commonwealth (Federal) and States Debts the scale for which is on the left hand side, and £20,000,000 for Commonwealth and States combined the scale for which is on the right hand. The Commonwealth (Federal) debt commenced in the year 1911.

AUSTRALIAN CONSOLIDATED REVENUE—COMMONWEALTH AND STATES, 1901-2 TO 1920-21.



EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year, while the vertical height represents £5,000,000. The zero lines in each case are marked thus "0."

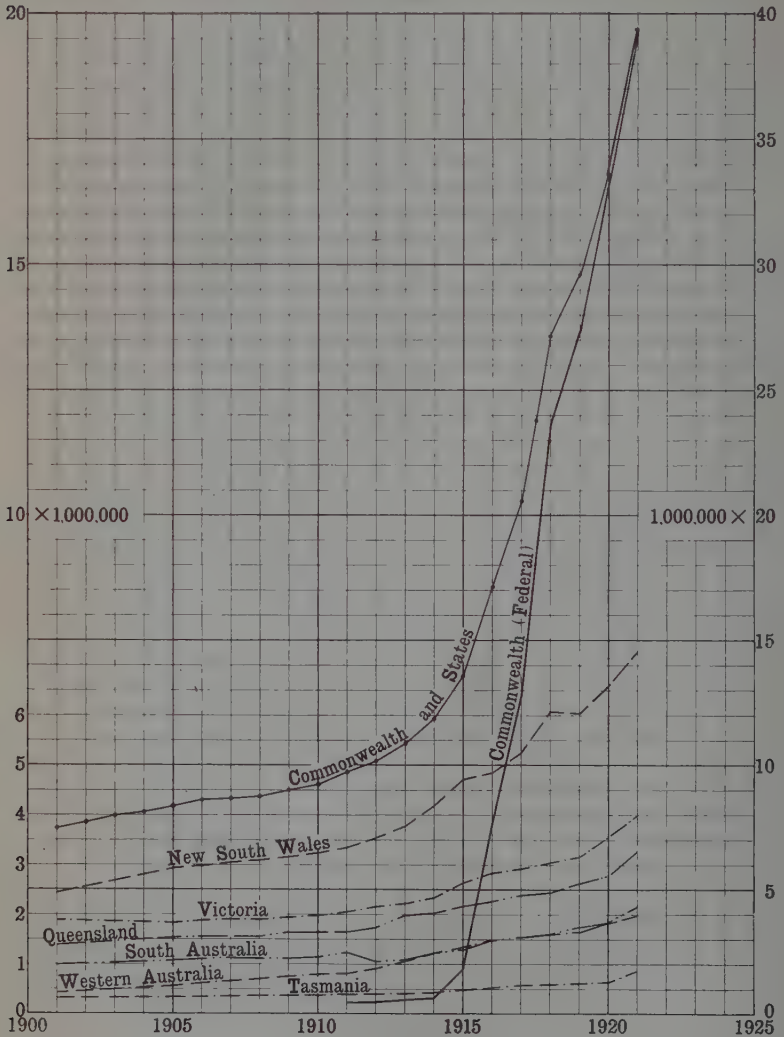
TAXATION.—COMMONWEALTH AND STATES, 1901-2 TO 1920-21.



See pp. 643, 675.

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year. Of the two scales on the left hand the outer one is that for the Commonwealth and States combined, the vertical height of each square representing £2,000,000 and the inner one that for the Commonwealth (Federal), the vertical height representing £1,000,000. The scale on the right hand is that for the States and the vertical height of each small square represents £100,000.

INTEREST ON PUBLIC DEBT.—COMMONWEALTH AND STATES, 1900-1 TO 1920-21.



See pp. 663, 639.

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year, while the vertical height represents £500,000 in the case of the Commonwealth (Federal) and States, the scale for which is on the left hand side, and £1,000,000 in the case of the Commonwealth and States combined for which the scale is on the right hand side.

States, the figures given being the percentage which each item of revenue bears to the total for the State for the year 1920-21 :—

PERCENTAGE OF ITEMS ON TOTAL STATE REVENUE, 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Taxation	21.71	20.19	29.22	22.68	14.07	33.65	22.27
Public works and services ..	62.35	56.90	43.72	58.30	55.36	38.76	56.66
Land	6.32	2.82	13.02	4.16	6.44	4.90	6.32
Commonwealth subsidy ..	7.44	9.86	7.23	8.23	8.32	17.22	8.37
Miscellaneous	2.18	10.23	6.81	6.63	15.81	5.47	6.38
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

7. State Taxation.—(a) *Details, 1920-21.* Prior to the inauguration of Federation the principal source of revenue from taxation was the return from duties of Customs and Excise. At the present time the most productive form of State taxation is the income tax, which is now imposed in all the States (Western Australia, the last of the States to adopt this method of taxation, having passed the necessary legislation during the Parliamentary session of 1907). For 1920-21 stamp duties occupied second place. In addition to these a State land tax and licence fees of various kinds are now collected in all the States, while a dividend tax is levied in Western Australia. The total revenue from taxation collected by the States during the year 1920-21 was £18,203,646, details of which are set forth in the table hereunder :—

STATE REVENUE FROM TAXATION, 1920-21.

Taxation.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Probate and succession duties	734,352	702,468	328,204	158,107	42,407	53,407	2,018,945
Other stamp duties	1,414,468	930,221	332,559	370,288	177,404	148,893	3,373,833
Land Tax	2,717	331,756	469,175	168,020	57,791	89,085	1,118,544
Income Tax	4,399,360	1,591,198	2,410,171	852,001	579,289	348,005	10,180,024
Licences	212,744	274,020	88,567	37,212	41,020	16,164	669,727
Other Taxation	624,492	17,170	53,966	36,448	57,448	53,049	842,573
Total	7,388,133	3,846,833	3,682,642	1,622,076	955,359	708,603	18,203,646

(b) *Summary, 1916-17 to 1920-21.* The total amount raised by means of taxation by the several State Governments during the five years 1916-17 to 1920-21 is given in the following table :—

STATE REVENUE FROM TAXATION, 1916-17 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
1916-17 ..	3,629,404	2,237,016	1,564,044	726,645	402,336	438,632	8,998,077
1917-18 ..	3,860,501	2,310,723	1,761,232	1,016,887	449,457	533,383	9,932,183
1918-19 ..	4,083,990	2,744,946	2,772,269	1,185,451	629,061	555,537	11,971,254
1919-20 ..	4,962,518	3,159,767	3,323,745	1,391,830	844,197	609,576	14,291,633
1920-21 ..	7,388,133	3,846,833	3,682,642	1,622,076	955,359	708,603	18,203,646

During the period between 30th June, 1916, and 30th June, 1921, the aggregate State revenue from taxation almost exactly doubled itself, the increase varying considerably in the several States. The remarkable increase of the last five years in New South Wales is due principally to the broadening of the basis of the State Income Tax, and increased receipts from Stamp Duties. Queensland collected a land tax for the first time in 1915-16, and substantially increased the income tax in 1918-19. Tasmania imposed in 1917-18 a super tax on incomes and a tax on motor vehicles. The total increase in State taxation for the year 1920-21 over the preceding year amounted to £3,912,013, or nearly 27 per cent.

The revenue per head of population from State taxation, collected in the several States during each of the years 1916-17 to 1920-21, was as follows :—

STATE TAXATION PER HEAD, 1916-17 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1916-17 ..	1 18 6	1 11 10	2 6 2	1 12 11	1 6 3	2 4 10	1 16 7
1917-18 ..	2 0 3	1 12 7	2 11 3	2 5 6	1 9 4	2 13 10	1 19 10
1918-19 ..	2 1 8	1 18 2	3 18 7	2 11 10	2 0 7	2 14 8	2 7 1
1919-20 ..	2 8 8	2 2 0	4 10 1	2 17 10	2 11 7	2 18 1	2 13 11
1920-21 ..	3 10 8	2 10 4	4 17 11	3 6 0	2 17 9	3 6 7	3 7 3

Taking the States as a whole, the State taxation increased by 30s. 8d. per head during the period from 1916-17 to 1920-21, the most marked increase occurring in the case of Queensland. Most of the advance took place in the last three years, and was chiefly due to the Land and Income Taxes.

8. **Commonwealth and State Taxation.**—For the purpose of obtaining an accurate view of the extent of taxation imposed on the people of the Commonwealth by the central governing authorities, it is necessary to add together the Commonwealth and State collections. This has been done in the table given hereunder, which contains particulars concerning the total taxation for each of the years 1916-17 to 1920-21, as well as the amount per head of population :—

COMMONWEALTH AND STATE TAXATION, 1916-17 TO 1920-21.

Particulars.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Commonwealth taxation ..	24,527,040	24,606,743	32,864,486	41,847,692	52,427,421
State taxation ..	8,998,077	9,932,183	11,971,254	14,291,633	18,203,646
Total ..	33,525,117	34,538,926	44,835,740	56,139,325	70,631,067
Taxation per head ..	£6/16/4	£6/18/7	£8/16/6	£10/11/9	£13/1/0

Whilst the Commonwealth taxation increased during the period by £27,900,381 the State taxation advanced by £9,205,569, the aggregate increase being £37,105,950. The amount *per capita* of total taxation remained fairly constant for some years previous to 1915-16, at an average of about £4 15s. Since then, however, it has reached an

extremely high amount, owing to the imposition of fresh direct taxation by the Commonwealth Government. The large increase in Commonwealth taxation in recent years is mainly due to the appearance of the Federal direct taxes, consequent upon the war.

The subject of taxation was treated in great detail at the end of Section XX. in the Official Year Book No. 14.

9. Public Works and Services.—A very large proportion of the revenue of all the States of the Commonwealth is made up of the receipts from the various public works and services under the control of the several Governments. The principal of these are railways and tramways, harbour works, and water supply and sewerage, while in addition, State batteries for the treatment of auriferous ores exist in Western Australia, and various minor revenue-producing services are rendered by the Governments of all the States. For the year 1920–21 the aggregate revenue from these sources totalled £46,311,900, or nearly 57 per cent. of the revenue from all sources. Details of revenue from public works and services for the year 1920–21 are as follows :—

STATE REVENUE FROM PUBLIC WORKS AND SERVICES, 1920–21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and tramways	18,047,389	9,848,061	5,330,312	2,996,882	2,913,611	594,843	39,731,098
Harbour services ..	1,015,135	145,938	54,249	440,632	185,469	..	1,841,423
Public batteries ..	..	555	..	..	69,467	..	70,022
Water supply and sewerage	1,618,261	(a) 284,063	..	370,320	402,355	..	2,674,999
Other public services ..	536,614	562,951	124,182	361,625	187,786	221,200	1,994,358
Total	21,217,399	10,841,568	5,508,743	4,169,459	3,758,688	816,043	46,311,900

(a) Water supply only.

10. Land Revenue.—The revenue derived by the States from the sale and rental of Crown lands has, with few exceptions, been treated from the earliest times as forming part of their respective Consolidated Revenue Funds, and has been applied to meet ordinary current expenses. Where the rentals received are for lands held for pastoral or for residential purposes, such application of the revenue appears perfectly justifiable. On the other hand, where the rentals are those of mineral and timber lands, and in all cases of sales of lands, such a proceeding is essentially a disposal of capital in order to defray current expenses and as a matter of financial procedure is open to criticism. In the following table particulars of revenue derived from sales and rental of Crown lands are given for the year 1920–21 :—

STATE LAND REVENUE, 1920–21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Sales ...	1,249,761	330,829	423,321	136,363	342,362	50,176	2,532,812
Rentals ..	901,704	207,902	1,217,303	160,131	94,904	52,888	2,634,832
Total ..	2,151,465	538,731	1,640,624	296,494	437,266	103,064	5,167,644

11. Commonwealth Subsidy.—The payments to the States of Commonwealth subsidy represent in each instance a considerable proportion of the States' revenue, and for the year 1920–21 aggregated £6,838,167. This represents a great decline from the amounts

received up to 1910, owing to the new system of allotting the subsidy. The percentage which the subsidy received by each State for 1920-21 was of the total revenue of that State is shewn in the following table :—

COMMONWEALTH SUBSIDY PAID TO STATES DURING 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Commonwealth subsidy	2,553,234	1,878,449	910,632	588,603	564,735	(a) 362,514	6,838,167
Total revenue	34,031,396	19,054,475	12,601,031	7,151,366	6,789,565	2,105,449	81,733,282
Percentage of subsidy on revenue	% 7.44	% 9.86	% 7.23	% 8.23	% 8.32	% 17.22	% 8.37

(a) Including special grant of £90,000.

The amount of subsidy here shewn is that for which the several States took credit during the year 1920-21. (See also page 670.)

12. Miscellaneous Items of Revenue.—In addition to the foregoing sources of revenue there are in each State several miscellaneous ones, including such items as interest, fines, fees, etc., which for the year 1920-21 aggregated £5,211,925. Of this amount, interest was responsible for £2,324,911.

(B) Disbursements.

1. Heads of Expenditure.—The principal heads of State expenditure from Consolidated Revenue Funds are :—

- (a) Interest and sinking funds in connexion with public debt.
- (b) Working expenses of railways and tramways.
- (c) Justice.
- (d) Police.
- (e) Penal establishments.
- (f) Education.
- (g) Medical and charitable expenditure.
- (h) All other expenditure.

Of these items, that of working expenses of railways and tramways was the most important, and for the year 1920-21 represented about 39 per cent. of the aggregate expenditure from the Consolidated Revenue Fund. Next in order for that year was the item of interest and sinking fund in connexion with the public debt, then education, medical and charitable expenditure, and police in the order named.

2. Total Expenditure.—The total expenditure from Consolidated Revenue Funds in the several States during each of the years 1916-17 to 1920-21 is furnished in the table given hereunder :—

STATE EXPENDITURE, CONSOLIDATED REVENUE FUNDS, 1916-17 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1916-17	20,806,633	11,795,295	8,134,387	5,190,453	5,276,764	1,412,893	52,616,425
1917-18	21,553,405	12,631,169	8,900,934	5,500,419	5,328,279	1,459,748	55,373,954
1918-19	23,233,398	13,023,407	9,587,532	5,876,811	5,596,864	1,644,512	58,962,524
1919-20	30,210,013	15,752,459	11,266,910	6,457,039	6,531,725	1,828,301	72,046,447
1920-21	34,476,892	18,941,698	12,591,201	7,543,640	7,476,291	2,189,157	83,218,879

As in the case of the table previously given for revenue, the above figures relate to the year ended 30th June.

3. **Expenditure per Head.**—Owing to the varying conditions of the several States and the extent to which the different functions of Government are distributed therein between central and local governing authorities, the expenditure per head from Consolidated Revenue Funds differs materially in the several States, being highest in the case of Western Australia and lowest in that of Tasmania. The expenditure per head of population for each State for the years 1916–17 to 1920–21 is as follows :—

STATE EXPENDITURE PER HEAD, 1916–17 TO 1920–21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1916–17	11 0 9	8 7 11	12 0 0	11 14 11	17 4 3	7 4 5	10 13 11
1917–18	11 4 7	8 18 3	12 18 11	12 6 2	17 7 8	7 7 4	11 2 3
1918–19	11 16 11	9 1 2	13 11 10	12 16 9	18 0 10	8 2 0	11 12 1
1919–20	14 16 5	10 9 7	15 5 6	13 8 2	19 19 0	8 14 2	13 11 8
1920–21	16 9 9	12 7 11	16 14 9	15 7 2	22 12 0	10 5 8	15 7 6

4. **Details of Expenditure for 1920–21.**—The following table furnishes for the year 1920–21 particulars as to the expenditure of the several States under each of the principal heads :—

DETAILS OF STATE EXPENDITURE, 1920–21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Public debt (interest, sinking fund, etc.) ..	6,631,068	4,390,439	2,930,703	1,875,054	2,233,881	739,584	18,800,729
Railways and tramways (working expenses) ..	14 060 309	7,857,380	5,046,498	2,613,904	2,630,281	487,154	32,695,526
Justice ..	483,843	226,608	172,677	64,824	87,186	18,962	1,054,100
Police ..	1,029,804	585,080	475,990	195,435	174,829	79,372	2,540,510
Penal establishments ..	113,882	75,981	40,190	33,010	28,685	9,773	301,521
Education ..	3,448,313	1,832,444	1,283,350	578,973	511,010	262,537	7,916,627
Medical and charitable ..	1 740 246	899,387	949,970	376,477	351,495	170,194	4,487,769
All other expenditure ..	6,969,427	3,074,379	1,691,823	1,805,963	1,458,924	421,581	15,422,097
Total ..	34,476,892	18,941,698	12,591,201	7,543,640	7,476,291	2,189,157	83,218,879

5. **Expenditure per Head, 1920–21.**—The expenditure per head of population of the several States for the year 1920–21 under each of the principal items, is given hereunder :—

STATE EXPENDITURE PER HEAD, 1920–21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Public debt (interest, sinking fund, etc.) ..	3 3 5	2 17 6	3 17 11	3 16 4	6 15 1	3 9 6	3 9 6
Railways and tramways (working expenses) ..	6 14 6	5 2 10	6 14 2	5 6 5	7 19 0	2 5 9	6 0 10
Justice ..	0 4 8	0 2 11	0 4 7	0 2 8	0 5 3	0 1 9	0 3 11
Police ..	0 9 10	0 7 8	0 12 8	0 7 11	0 10 7	0 7 6	0 9 4
Penal establishments ..	0 1 1	0 1 0	0 1 1	0 1 4	0 1 9	0 0 11	0 1 1
Education ..	1 13 0	1 4 0	1 14 1	1 3 7	1 10 11	1 4 8	1 9 3
Medical and charitable ..	0 16 8	0 11 9	1 5 3	0 15 4	1 1 3	0 16 0	0 16 7
All other expenditure ..	3 6 7	2 0 3	2 5 0	3 13 7	4 8 2	1 19 7	2 17 0
Total ..	16 9 9	12 7 11	16 14 9	15 7 2	22 12 0	10 5 8	15 7 6

6. **Relative Importance.**—The relative importance of the items of expenditure enumerated above varies considerably in the several States. This will readily be seen from the following table, giving for each State the percentage of the expenditure under the various items, on the total expenditure for the State:—

PERCENTAGE OF ITEMS ON TOTAL STATE EXPENDITURE, 1920-21.

Particulars,	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States
	%	%	%	%	%	%	%
Public debt (interest, sinking fund, etc.)	19.23	23.18	23.28	24.86	29.88	33.78	22.59
Railways and tramways (working expenses)	40.78	41.38	40.08	34.65	35.18	22.25	39.30
Justice	1.40	1.20	1.37	0.86	1.17	0.87	1.27
Police	2.99	3.09	3.78	2.59	2.34	3.63	3.05
Penal establishments	0.33	0.40	0.32	0.44	0.38	0.45	0.36
Education	10.00	9.67	10.19	7.67	6.84	11.99	9.51
Medical and charitable	5.05	4.75	7.54	4.99	4.70	7.77	5.39
All other expenditure	20.22	16.23	13.44	23.94	19.51	19.26	18.53
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Taken together, the interest and sinking fund on the public debt, and the working expenses of the railways and tramways represented for the year 1920-21 about 60 per cent. of the aggregate State expenditure, a proportion which has been maintained with great regularity for many years past.

(C) Balances.

1. **Position on 30th June, 1921.**—On various occasions in each of the States the revenue collected for a financial year has failed to provide the funds requisite for defraying the expenditure incurred during that year, the consequence being a deficit which is usually liquidated either by cash obtained from trust funds, or by the issue of Treasury bills. In some of the States a number of such deficits has occurred, interspersed with occasional surpluses, the result being an accumulating overdraft, which in certain instances assumed very large proportions. Thus, during the period of financial stress resultant upon the crisis of 1893 and the drought conditions of succeeding years, the accumulated overdrafts of several of the States grew very rapidly, and the situation has changed very much for the worse in the years preceding 1920-21, so that no State has now a credit balance. The position of the balances of the several Consolidated Revenue Funds on 30th June, 1921, was as follows:—

STATE CONSOLIDATED REVENUE FUND BALANCES, 30th JUNE, 1921.

State.	Debit Balance.		Net Debit Balance.
	Cash Overdraft.	Overdraft liquidated by Treasury Bills.	
	£	£	£
New South Wales	2,249,558	..	2,249,558
Victoria	137,421	1,153,285	1,290,706
Queensland	426,610	..	426,610
South Australia	1,489,923	..	1,489,923
Western Australia	..	..	4,773,430
Tasmania	228,719	..	228,719
Total	..	..	10,458,946

(D) Principal State Taxes.**(a) Probate and Succession Duties.**

1. **General.**—Probate duties have been levied for a considerable time in all the States of the Commonwealth. From the provisions of the several State Acts governing the payment of duty, it will be seen that both the ordinary rates and those which apply to special beneficiaries differ widely in several cases. A table shewing the values of the estates in the various States in which probates and letters of administration were granted is shewn hereinafter. (See Section XXIII. § 5 (4).)

The duties collected in the several States for the financial years 1916-17 to 1920-21 are as follows :—

AMOUNT OF PROBATE AND SUCCESSION DUTIES COLLECTED, 1916-17 TO 1920-21.

State.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
New South Wales ..	826,769	677,433	575,875	1,062,533	734,352
Victoria.. ..	546,400	506,662	718,194	881,423	702,468
Queensland ..	146,077	121,986	(a)	(a)	328,204
South Australia ..	134,620	170,185	221,729	192,540	158,107
Western Australia ..	40,963	38,710	40,329	121,951	42,407
Tasmania ..	37,310	50,688	64,410	50,271	53,407
Total	1,732,139	1,565,664	1,620,537 (b)	2,308,718 (b)	2,018,945

(a) Included in Stamp Duties.

(b) Excluding Queensland.

(b) Stamp Duties.

1. **Revenue.**—The revenue derived by the several States of the Commonwealth from stamp duties for the years 1916-17 to 1920-21 is shewn in the accompanying table :—

STAMP REVENUE (EXCLUSIVE OF PROBATE AND SUCCESSION DUTIES), 1916-17 TO 1920-21.

State.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	
New South Wales ..	550,211	616,180	687,304	978,343	1,414,468
Victoria.. ..	376,196	507,573	583,818	822,489	930,221
Queensland ..	175,186	205,674	a387,742	a698,382	332,559
South Australia ..	145,079	179,521	213,130	325,034	370,288
Western Australia ..	67,035	80,720	112,104	173,541	177,404
Tasmania ..	77,636	96,215	96,949	128,574	148,893
Total	1,391,343	1,685,883	2,081,047	3,126,363	3,373,833

(a) Including Queensland probate and succession duties.

2. **Bank Notes.**—Promissory notes issued by any bank were not required to bear a duty stamp either impressed or adhesive, and might be re-issued as often as thought fit. An annual composition was, however, paid in lieu of stamp duty up to 1910. This composition was payable quarterly, and was the same in all States, being at the rate of £2 per annum on every £100 or part thereof of the average annual amount of bank notes in circulation. On 2nd June, 1893, the Treasury Notes Act of Queensland became law, by which the issue of Treasury notes payable on demand was authorized. These notes were used exclusively by the banks in that State, but their issue was prohibited by the Federal Bank Note Tax Act, and they have now passed out of circulation. (See Section XXI., Private Finance.)

(c) Land Tax.

1. **General.**—All the States now impose a Land Tax, although Queensland, the last State to fall into line, only collected its first levy in 1915–16. Western Australia imposed its first tax in 1907, but in the other States the impost is of very long standing.

The following table shews the amount collected by means of such taxes during the financial years 1916–17 to 1920–21 :—

STATE LAND TAX COLLECTIONS, 1916-17 TO 1920-21.

State.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
New South Wales	3,215	2,921	2,800	2,834	2,717
Victoria	369,486	353,156	324,232	314,217	331,756
Queensland	362,535	344,547	578,253	459,188	469,175
South Australia	139,372	165,469	154,621	146,336	168,020
Western Australia	42,431	63,388	34,182	46,415	57,791
Tasmania	83,595	84,701	86,705	87,785	89,085
Total	1,000,634	1,014,182	1,180,793	1,056,775	1,118,544

(d) Income Tax.

1. **General.**—A duty on the income of persons, whether it be derived from personal exertion or from property, is now imposed in all the States of the Commonwealth. As might be expected, the rates, exemptions, etc., are widely divergent in the different States, but the general principles of the several Acts are similar. The Dividend Duties Acts of Queensland and Western Australia—the former of which is now repealed—supplied to a certain extent the place of an income tax in those States in former years, but, with the increasing demands upon the State Treasury, the levying of a direct income tax has been found necessary.

In the following table particulars are furnished concerning the total amount collected in the several States during the years 1916–17 to 1920–21. In the case of Western Australia the amount of dividend duty collected is included, this tax being closely allied to the income tax.

STATE INCOME AND DIVIDEND TAXES, 1916-17 TO 1920-21.

State.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
New South Wales	1,973,477	2,182,117	2,355,243	2,308,267	4,399,360
Victoria	766,746	773,468	928,210	915,551	1,591,198
Queensland	756,292	967,420	1,677,335	2,023,316	2,410,171
South Australia	264,946	452,303	542,007	662,384	852,001
Western Australia	196,221	207,963	359,623	416,136	579,289
Tasmania	216,278	259,869	261,028	279,476	348,005
Total	4,173,960	4,843,140	6,123,446	6,605,130	10,180,024

§ 3. Trust Funds.

1. **Nature.**—In addition to the moneys received by the several State Governments as revenue, and paid to the credit of their respective Consolidated Revenue Funds, considerable sums are held by the Governments in trust for various purposes. One of the chief sources of these trust funds is the State Savings Bank, which exists in each State either as a Government department or under the control of a Board acting under Government supervision or Government guarantee. In most of the States also, sinking funds for the redemption of public debt are provided, and the moneys accruing thereto are paid to the credit of the appropriate trust funds. A similar course is followed in the case of municipal sinking funds placed in the hands of the Government. In all the States except New South Wales, life assurance companies carrying on business are required to deposit a substantial sum in cash or approved securities with the Government, and these deposits go to further swell the trust funds. Various other deposit accounts, superannuation funds, suspense accounts, etc., find a place in these funds. The trust funds have at various times enabled the several State Treasurers to tide over awkward financial positions, but the propriety of allowing deficits to be frequently liquidated in this manner is open to question.

2. **Extent of Funds.**—The amount of such funds held by the several State Governments on 30th June, 1921, was as follows :—

STATE TRUST FUNDS ON 30th JUNE, 1921.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
Amount of trust funds	13,097,856	14,570,400	1,085,030	2,161,721	16,391,200	1,156,359	48,462,566

§ 4. Loan Funds.

1. **Nature.**—As early in the history of Australia as 1842 it was deemed expedient to supplement the revenue collections by means of borrowed moneys, the earliest of the loans so raised being obtained by New South Wales for the purpose of assisting immigration, at rates of interest varying from 2½d. to 5½d. per £100 per diem, or approximately from 4½ per cent. to 8 per cent. per annum. The principal reason for Australian public borrowing, however, has been the fact that the Governments of the several States have, in addition to ordinary administrative duties, undertaken the performance of many functions which, in other countries, are usually entrusted to local authorities, or left to the initiative of private enterprise. Principal amongst these have been the construction of railways and the control of the railway systems of the several States, while the assumption by the State Governments of responsibilities in connexion with improvements to harbours and rivers, as well as the

construction of works for the purposes of water supply and sewerage, have materially swelled the amounts which it has been considered expedient to obtain by means of loans. The Australian State loan expenditure and public debt thus differ very materially from those of most European countries, and also from those of the Commonwealth, where such expenditure was very largely incurred for purposes of defence, or absorbed in the prosecution of war. The State debts of Australia, on the other hand, consist in the main of moneys raised and expended with the object of assisting the development of the resources of the Commonwealth, and are, to a very large extent, represented by tangible assets such as railways, tramways, waterworks, etc.

2. **Loan Expenditure, 1920-21.**—During the year ended 30th June, 1921, the actual expenditure of the Australian States from loan funds amounted to £37,178,131, New South Wales with a total of £14,701,028 being the principal contributor to this amount. The expenditure on railways and tramways is a very heavy item, but the main cause of this large expenditure is the settlement of returned soldiers upon the land. Details for the year for each State are given in the following table :—

STATE LOAN EXPENDITURE, 1920-21.

Heads of Expenditure.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and tramways ..	4,025,038	1,685,329	1,780,158	252,097	180,143	254,079	8,176,844
Water supply and sewerage ..	2,854,495	692,659	119,654	1,115,083	213,608	..	4,995,499
Harbours, rivers, etc. }	673,418	966,130	..	398,467	150,454	137,509	2,325,978
Roads and bridges }	179,502	96,352	291,267	40,826	24,963	65,877	698,787
Public buildings ..	..	(a) 7	..	..	43,902	..	43,895
Development of mines, etc.	1,662,038	85,057	..	..	183,523	92,260	2,022,878
Advances to settlers ..	2,758,000	6,894,557	1,017,534	15,344	1,527,664	1,146,985	13,360,084
Land purchases for settlement	(a) 3,687	..	845,307	..	..	17,363	868,983
Loans to local bodies ..	43,568	..	1,204	..	328	..	45,100
Rabbit-proof fences ..	..	..	..	..	..	..	..
Other public works and purposes ..	2,508,656	675,081	196,124	5,024	261,819	1,003,379	4,650,083
Total ..	14,701,028	11,095,158	4,251,248	1,826,841	2,586,404	2,717,452	37,178,131

(a) Repayment.

3. **Aggregate Loan Expenditure.**—The total loan expenditure of the Australian States from the initiation of the borrowing system to the 30th June, 1921, has amounted to no less a sum than £458,520,093. The manner in which this sum has been spent in the several States is furnished in the following table :—

AGGREGATE STATE LOAN EXPENDITURE TO 30th JUNE, 1921.

Heads of Expenditure.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Railways and tramways	97,061,118	58,218,422	44,568,670	21,451,931	18,258,224	5,851,065	245,409,430
Telegraphs and telephones	1,761,845	..	996,587	991,773	..	..	3,750,205
Water supply and sewerage	30,860,201	14,066,392	1,558,588	11,806,514	5,192,552	62,545	63,546,792
Harbours, rivers, etc. }	19,367,138	4,457,449	3,351,758	6,035,733	4,344,407	5,195,375	42,751,860
Roads and bridges }	1,457,536	149,323	363,084	291,615	..	128,224	2,389,782
Defence ..	6,189,501	2,524,930	2,597,283	1,666,124	854,199	1,363,991	15,196,023
Public buildings ..	569,930	..	2,763,070	..	412,540	235,000	3,980,540
Immigration ..	..	..	..	..	..	..	..
Development of mines, etc.	..	510,638	..	5,111	1,821,303	..	2,337,052
Advances to settlers ..	1,748,299	1,032,363	..	2,227,844	3,069,942	191,498	8,269,946
Land purchases for settlement ..	4,247,000	18,568,199	2,102,487	1,992,214	4,083,417	2,723,734	33,717,051
Loans to local bodies ..	(a) 12,798	..	7,031,592	..	64,492	1,251,385	8,334,671
Rabbit-proof fences ..	122,417	..	..	221,204	342,012	..	685,723
Other public works and purposes ..	7,904,785	6,885,992	2,383,898	3,686,390	4,571,866	2,718,082	28,151,013
Total ..	171,276,972	106,418,708	67,717,017	50,376,543	43,014,954	19,720,899	458,520,093

(a) Repayment.

It must be noted that the figures furnished in this table represent the amounts actually spent, and consequently differ somewhat from those given later in the statements relating to the public debt, which represent amount of loans still unpaid at a given date. The loan expenditure statement includes all such expenditure, whether the loans by means of which the necessary funds were raised have been repaid or are still in existence. On the other hand, in the public debt statement loans repaid are excluded, but in the case of loans still outstanding each is shown according to the amount repayable at maturity, not according to the amount originally available for expenditure.

4. **Relative Importance of Loan Items.**—The relative importance of the different items of loan expenditure given in the foregoing table varies considerably in the several States. The following table gives for each State the percentage of each item on the total loan expenditure of that State to 30th June, 1921 :—

PERCENTAGE OF EACH ITEM ON TOTAL LOAN EXPENDITURE OF THE STATES TO 30th JUNE, 1921.

Heads of Expenditure.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	%	%	%	%	%	%	%
Railways and tramways ..	56.67	54.71	65.82	42.58	42.15	29.67	53.52
Telegraphs and telephones ..	1.03	..	1.47	1.97	..	..	0.82
Water supply and sewerage ..	18.01	13.22	2.28	23.44	12.01	0.32	13.86
Harbours, rivers, etc. }	11.31	4.19	4.95	11.98	10.10	26.34	9.32
Roads and bridges }							
Defence	0.85	0.14	0.54	0.58	..	0.65	0.52
Public buildings	3.61	2.37	3.83	3.30	1.98	6.92	3.31
Immigration	0.33	..	4.08	..	0.96	1.19	0.87
Development of mines, etc. ..	..	0.48	..	0.01	4.29	..	0.51
Advances to settlers	1.02	0.97	..	4.42	7.14	0.97	1.81
Land purchases for settlement	2.48	17.45	3.13	3.96	9.49	13.81	7.35
Loans to local bodies .. ..	..	..	10.38	..	0.15	6.35	1.82
Rabbit-proof fences	0.07	..	..	0.44	0.80	..	0.15
Other public works and purposes	4.62	6.47	3.52	7.32	10.63	13.78	6.14
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

5. **Loan Expenditure in Successive Years.**—In the following table are given particulars relative to the loan expenditure of the several States during each of the years 1916-17 to 1920-21 :—

STATE LOAN EXPENDITURE, 1916-17 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
1916-17..	6,862,179	2,440,966	2,267,962	1,811,531	855,184	476,472	14,714,294
1917-18..	4,487,511	1,931,679	1,828,320	1,536,766	1,054,177	518,929	11,407,382
1918-19..	3,918,887	2,932,521	2,736,412	2,006,166	1,049,736	575,054	13,218,776
1919-20..	8,794,905	7,601,266	4,797,865	3,446,617	2,663,319	1,375,960	28,679,932
1920-21..	14,701,028	11,095,158	4,251,248	1,826,841	2,586,404	2,717,452	37,178,131

Throughout the five years under review the loan expenditure of New South Wales exceeded that of any other of the States, and for many years has represented on the average between 30 and 40 per cent. of the aggregate of Australia.

6. **Loan Expenditure per Head.**—The loan expenditure per head of population varies materially in the different States and in different years, reaching its highest point for the five years under review in Tasmania in 1920-21 with £12 5s. 11d. per head, and

its lowest in Victoria in 1917-18 with 27s. 3d. per head. Particulars concerning the loan expenditure per head for the five years 1916-17 to 1920-21 are given hereunder :—

STATE LOAN EXPENDITURE PER HEAD, 1916-17 TO 1920-21.

Year.	N.S.W.			Victoria.			Q'land.			S. Aust.			W. Aust.			Tasmania.			All States.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1916-17 ..	3	12	10	1	14	9	3	6	11	4	2	0	2	15	9	2	8	8 ⁷ / ₈	2	19	10
1917-18 ..	2	6	9	1	7	3	2	13	2	3	11	0	3	8	9	2	12	5 ⁷ / ₈	2	5	9
1918-19 ..	2	0	0	2	0	10	3	17	7	4	7	8	3	7	9	2	16	8 ⁷ / ₈	2	12	0
1919-20 ..	4	6	4	5	1	2	6	11	0	7	3	2	8	2	8	6	11	1 ⁷ / ₈	5	11	11
1920-21 ..	7	0	7	7	5	2	5	13	0	3	14	4	7	16	4	12	5	11 ⁷ / ₈	6	17	4

§ 5. Public Debt.

1. **Initiation of Public Borrowing.**—The earliest of the loans raised in Australia for Government purposes was that obtained by New South Wales in 1842. This and nine other loans raised prior to 1855 were all procured locally. In the last-mentioned year Australia's first appearance on the London market occurred, the occasion being the placing of the first instalment of the New South Wales 5 per cent. loan for £683,300. Victoria first appeared as a borrower in 1854, and made its first appearance on the London market in 1859. In the remaining States the first public loans were raised in the following years:—Queensland 1861, South Australia 1854, Western Australia 1845, and Tasmania 1867.

2. **Nature of Securities.**—All the earlier loans raised by the Australian States were obtained by the issue of debentures, some of which were repayable at fixed dates, and others by annual or other periodical drawings. In more recent years, however, the issue of debentures has given place to a great extent to that of inscribed stock, the inscription in the case of local issues being carried out by the State Treasuries, and in the cases of loans floated in London being mainly performed by the Bank of England and the London County and Westminster Bank. Another form of security is that variously known as the Treasury bill or Treasury bond. This is usually merely a short term debenture having a currency in most instances of from three to five years. The bonds are issued in certain cases to liquidate deficiencies in revenue, and in others to obtain moneys for the purpose of carrying on public works at a time when it is deemed inexpedient to place a permanent loan on the market. The amount of the public debt of the several States held in each of these forms of security is furnished in the table hereunder :—

PUBLIC DEBT OF THE AUSTRALIAN STATES, 30th JUNE, 1921.

State.	Debentures.	Inscribed Stock.	Treasury Bills.		Total Amount Outstanding.
			For Public Works and Services.	In aid of Revenue.	
	£	£	£	£	£
New South Wales	13,797,480	140,319,912	10,219,100	..	(a) 164,336,492
Victoria ..	33,502,127	60,062,419	2,600,000	1,153,285	97,317,831
Queensland ..	24,533,799	48,171,176	1,000,000	1,379,350	(b) 80,382,052
South Australia	..	41,213,302	7,343,250	..	(a) 48,556,552
Western Australia	1,339,653	35,964,841	5,346,940	2,866,415	(c) 49,039,667
Tasmania	2,170,354	15,605,952	1,000,000	..	18,776,306
Total ..	75,343,413	341,337,602	27,509,290	5,399,050	(a), (b) 458,408,900

(a) Exclusive of loans from the Commonwealth Government in respect of soldier land settlement and reserve employment, which amount to £6,257,009 for New South Wales, and £2,363,836 for South Australia.

(b) Including advance of £5,297,727 from Commonwealth Government.

(c) Including advance of £3,521,818 from Commonwealth Government.

The manner in which the amount of public debt of the Australian States held under these various forms of security has grown during the past six years will be seen from the following table :—

PUBLIC DEBT OF THE AUSTRALIAN STATES, 1916-17 TO 1920-21.

Date.	Debentures.	Inscribed Stock.	Treasury Bills.		Total Amount Outstanding.
			For Public Works and Services.	In aid of Revenue.	
	£	£	£	£	£
30th June, 1917 ..	60,364,239	279,252,215	29,782,535	3,118,635	372,517,624
" 1918 ..	63,616,822	296,459,069	28,468,060	3,996,210	392,540,161
" 1919 ..	70,928,892	289,785,322	28,961,760	5,626,140	(a) 396,356,149
" 1920 ..	72,244,575	308,896,687	28,202,945	4,146,790	(b) 417,309,772
" 1921 ..	75,343,413	341,337,602	27,509,290	5,399,050	(c) 458,408,900

(a) Including Queensland loan of £1,054,035 not represented by securities.

(b) Including Queensland and West Australian loans of £3,818,775 not represented by securities.

(c) Including £8,819,545 not represented by securities.

During the period between 30th June, 1917, and 30th June, 1921, the public debt of the States increased by £85,891,276, or at the rate of about £21,500,000 per annum.

3. Increase in Indebtedness of the Several States.—The table given hereunder furnishes particulars of the increase which has taken place during the past five years in the public debts of the several States :—

PUBLIC DEBT OF THE AUSTRALIAN STATES, 30th JUNE, 1917 TO 1921.

Date.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
	£	£	£	£	£	£	£
30th June, 1917 ..	138,138,347	78,125,395	61,303,136	39,364,280	40,914,826	14,671,640	372,517,624
" 1918 ..	152,584,693	79,595,646	62,296,986	40,621,480	42,304,001	15,137,355	392,540,161
" 1919 ..	147,174,536	82,031,969	65,581,121	42,650,206	43,637,076	15,281,281	396,356,149
" 1920 ..	152,776,082	87,647,739	69,680,764	43,753,140	46,822,003	16,630,038	417,309,772
" 1921 ..	164,336,492	97,317,881	80,382,052	48,556,552	49,039,667	18,776,306	458,408,900

The State in which the greatest increase in indebtedness was experienced during the period is New South Wales, which added £26,198,145 during the period under review. There was an apparent decline in the Public Debt of New South Wales in 1918-19. This was due to the fact that the debt in 1917-18 included stock raised in February, 1918, for the redemption of loans maturing in September, 1918.

4. Indebtedness per Head.—The indebtedness per head of population varies considerably in the several States, being highest in the case of Western Australia, and lowest in that of Victoria. Details for the period from 30th June, 1917, to 30th June, 1921, are as follows :—

PUBLIC DEBT OF AUSTRALIAN STATES PER HEAD, 30th JUNE, 1917 TO 1921.

Date.	N.S.W.		Victoria.		Q'land.		S. Aust.		W. Aust.		Tasmania.		All States.	
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.
30th June, 1917 ..	72	11 6	55	6 11	89	14 8	89	0 8	133	14 0	75	10 8	74	0 3
" 1918 ..	78	11 7	55	17 9	89	2 5	89	19 4	137	8 7	76	7 0	76	12 0
" 1919 ..	73	12 3	55	13 8	90	10 0	91	0 10	138	11 4	74	10 6	74	16 8
" 1920 ..	73	18 2	57	19 1	93	4 4	89	17 8	142	1 7	79	0 5	76	9 7
" 1921 ..	78	4 1	63	7 2	104	8 1	97	11 11	147	4 3	88	11 6	81	11 11

5. *Flotation of Loans.*—The early loans of the Australian States, usually for comparatively small amounts, were raised locally, but, with the increasing demand for loan funds and the more favorable terms offering in the London than in the local money market, the practice of placing Australian public loans in London came into vogue, and for many years local flotations, except for short terms or small amounts, were comparatively infrequent. In more recent years, however, the accumulating stocks of money in Australia seeking investment have led to the placing of various redemption and other loans locally, with very satisfactory results. In the following table are given particulars of loans of the several States outstanding on 30th June, 1921, which had been floated in London and Australia respectively :—

PUBLIC DEBT OF AUSTRALIAN STATES, 30th JUNE, 1921.

State.	Floated in London.		Floated in Australia.		Total Public Debt.
	Amount.	Percentage on Total Debt.	Amount.	Percentage on Total Debt.	
	£	%	£	%	£
New South Wales ..	108,417,602	65.97	55,918,890	34.03	164,336,492
Victoria ..	38,709,050	39.78	58,608,781	60.22	97,317,831
Queensland ..	55,318,847	63.82	25,063,205	31.18	80,382,052
South Australia ..	25,752,878	53.04	22,803,674	46.96	48,556,552
Western Australia ..	32,168,253	65.59	16,871,414	34.41	49,039,667
Tasmania ..	9,711,340	51.72	9,064,966	48.28	18,776,306
Total ..	270,077,970	58.92	188,330,930	41.08	458,408,900

The following table, giving corresponding particulars for the aggregate indebtedness of the Australian States at the end of each of the financial years 1916–17 to 1920–21, furnishes an indication of the rapidity with which the local holdings of Australian securities have grown in recent years :—

PUBLIC DEBT OF AUSTRALIAN STATES, 30th JUNE, 1917 TO 1921.

Date.	Floated in London.		Floated in Australia.		Total Public Debt.
	Amount.	Percentage on Total Debt.	Amount.	Percentage on Total Debt.	
	£	%	£	%	£
30th June, 1917 ..	243,735,172	65.43	128,782,452	34.57	372,517,624
„ 1918 ..	261,107,683	66.52	131,432,478	33.48	392,540,161
„ 1919 ..	258,200,003	65.14	138,156,146	34.86	396,356,149
„ 1920 ..	263,412,174	63.12	153,897,598	36.88	417,309,772
„ 1921 ..	270,077,970	58.92	188,330,930	41.08	458,408,900

It will be seen that in the course of five years the London indebtedness of the States has increased by £26,342,798, while the local indebtedness has increased by £59,548,478. In other words, the Australian proportion had on 30th June, 1921, grown to more than two-fifths.

It will be noticed in the foregoing table that the Australian indebtedness of the States increased during the year 1920-21 to a figure absolutely higher than had ever before been attained. This is due in the main to the loans from the Commonwealth Government, which has either advanced money to the States outright, or acted as agent for the States in obtaining loans from London. The money so obtained has been largely spent in settling returned soldiers on the land, constructing silos for wheat storage, and providing reserve employment.

6. Rates of Interest.—As mentioned above, the highest rate of interest paid in connexion with the earliest Australian public loans was fivepence farthing per £100 per diem, or, approximately, 8 per cent. per annum. At the present time the rates of interest on State debts vary from $7\frac{1}{2}$ per cent. down to 3 per cent. It is most probable, however, that the amount of outstanding debt at the higher rates will increase materially in the future, since conversion can scarcely be effected at present at a lower rate of interest than $5\frac{1}{2}$ per cent. The average rate payable on the aggregate indebtedness of the Australian States is about $4\frac{1}{2}$ per cent. For the separate States the average rate payable varies considerably, being lowest in the case of Western Australia and highest in that of New South Wales: the difference between these two average rates is about $\frac{1}{2}$ per cent. In the table given hereunder particulars are furnished of the rates of interest payable on the public debt of the several States of the Commonwealth on 30th June, 1921:—

RATES OF INTEREST PAYABLE ON PUBLIC DEBT OF STATES, 30th JUNE, 1921.

Rate of Interest.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
%	£	£	£	£	£	£	£
$7\frac{1}{2}$	..	..	..	..	..	100,090	100,090
7	..	..	1,000,000	..	..	1,000,000	1,000,000
$6\frac{1}{2}$	6,500,000	..	2,036,340	3,000,000	..	436,039	11,972,379
$6\frac{1}{4}$	..	10,162,483	..	..	..	1,010,320	11,172,803
6	..	1,069,100	2,414,700	1,945,572	3,246,478	1,050,188	9,726,038
$5\frac{1}{2}$	18,076,000	510,900	..	..	1,500,000	85,776	20,171,776
$5\frac{1}{4}$	18,574,475	11,326,850	4,189,500	9,226,393	3,050,500	867,000	47,234,718
$5\frac{1}{8}$	16,080,029	(a) 8,415,069	1,275,000	881,100	1,435,000	1,631,809	29,718,007
5	6,622,082	4,284,397	327,100	5,106,558	428,060	1,636,455	18,404,652
$4\frac{1}{2}$	..	6,082,390	..	500,000	..	6,582,390	6,582,390
$4\frac{1}{4}$	5,977,184	2,910,075	14,040,450	1,589,854	2,257,453	379,816	27,154,832
$4\frac{1}{8}$	..	696,260	..	..	..	140,750	837,010
$4\frac{1}{16}$	7,400,000	3,900,000	..	2,600,000	3,100,000	1,000,000	18,000,000
4	28,143,540	9,492,127	21,702,149	7,245,698	12,704,686	4,695,430	83,983,630
$3\frac{1}{2}$	2,644,960	229,683	2,550,050	4,633,660	1,650,000	311,501	12,019,854
$3\frac{1}{4}$	37,265,315	27,977,932	21,458,388	5,900,435	12,317,490	4,952,346	109,871,906
3	17,047,072	9,895,707	5,489,383	5,927,282	7,350,000	478,786	46,188,230
Not bearing interest ..	5,835	1,000	600	..	..	..	7,435
Total ..	164,336,492	(b) 97,317,831	(c) 80,382,052	48,556,552	49,039,667	18,776,306	458,408,900 (b) (c)

(a) Including £3,563,724 at £5 6s. 11d. and £1,644,915 at £5 5s. 3d. (b) Including £364,758 not fixed.
(c) Including £3,898,392 not fixed.

The rapid increase which has taken place in recent years in the amount of Australian Government securities, bearing interest at the higher rates, is clearly shewn in the table hereunder, which gives particulars concerning the aggregate amount of the Australian indebtedness, at the several rates of interest, on 30th June in each of the years 1917 to 1921:—

RATES OF INTEREST PAYABLE ON PUBLIC DEBT OF STATES, 30th JUNE, 1917 TO 1921.

Rate of Interest.	30th June, 1917.	30th June, 1918.	30th June, 1919.	30th June, 1920.	30th June, 1921.
%	£	£	£	£	£
11	..	..	..	..	100,000
7	..	..	..	..	1,000,000
6½	..	..	..	..	11,972,379
6½	..	..	..	..	11,172,803
6	19,900	1,900	..	2,241,800	9,726,038
5½	..	13,076,000	16,076,000	19,576,000	20,171,776
5½	5,590,000	10,180,000	20,924,002	35,333,489	47,234,718
5½	6,695,400	6,695,400	8,462,694	25,220,443	29,718,007
5	14,753,617	17,582,034	18,100,129	20,692,892	18,404,652
4½	..	..	7,158,860	7,368,597	6,582,390
4½	32,845,044	37,746,932	38,557,543	28,277,650	27,154,832
4½	..	400,000	..	..	..
4½	..	801,000	646,250	640,750	837,010
4½	18,000,000	18,000,000	18,000,000	18,000,000	18,000,000
4	95,382,445	93,220,106	92,321,823	87,383,636	83,983,630
3½	24,714,487	24,376,838	23,834,798	12,654,232	12,019,854
3½	127,146,373	124,075,299	110,222,724	109,989,876	109,871,906
3½	24,718	24,718	24,718	24,718	24,718
3	46,425,623	46,351,684	46,415,173	46,245,134	46,163,512
Not bearing interest	19,017	8,250	261,435	36,255	7,435
Total	372,517,624	392,540,161	396,356,149	417,309,772	458,408,900
Average rate	£3/16/6	£3/18/6	£4/0/3	£4/3/4	£4/5/9

The increase of the average rate of interest started in 1912, but was accelerated by the war, which has virtually made 5½ per cent. the present minimum rate of interest for gilt-edged securities. The average rate is likely to rise for some considerable time, since securities falling due in the immediate future will, in all likelihood, have to be renewed at a higher rate of interest.

7. **Interest per Head.**—The relative burden of the debts of the several States in respect of interest payments will be seen from the following table, which gives for the 30th June, 1921, the amount of interest paid during the financial year ending at that date, and also the corresponding amount per head of population :—

STATE DEBTS.—INTEREST PAID DURING 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	All States.
	£	£	£	£	£	£	£
Total annual interest paid	6,601,894	3,811,245	(a) 2,930,703	1,851,288	1,913,628	642,457	17,751,215
Annual interest paid per head	£3/3/10	£2/10/5	£3/18/5	£3/16/1	£5/16/2	£3/1/1	£3/6/3

(a) Inclusive of flotation expenses.

8. **Dates of Maturity.**—An important point of difference between the securities of the Australian Governments, whether in the form of inscribed stock, debentures, or Treasury bills, and such a well-known form of security as British Consols, is that whereas the latter are interminable, the Australian Government securities have in almost all cases a fixed date for repayment, there being only a few exceptions, which are included in the following table under the headings "interminable" and "indefinite." The "indefinite" includes amounts which are payable by the respective Governments after giving a specified notice, and also certain amounts owing to the Commonwealth Government. The terms of the loans raised by the issue of debentures and inscribed stock have varied considerably in the different States, ranging between fifteen and fifty years, while loans obtained by means of Treasury bills have usually been for such short terms as from six months to five years. In the case of the majority of the loans the arrival of the date of maturity means that arrangements for renewal are necessary in respect of the greater portion of the loan, as it is only in exceptional cases that due provision for redemption has been made. The condition of the money market at the date of maturity has an important bearing on the

success or otherwise with which the renewal arrangements can be effected, and consequently, in order to obviate the necessity for making an application to the market at an unfavorable time, several of the States have adopted the practice of specifying a period of from ten to twenty years prior to the date of maturity within which the Government, on giving twelve, or in some cases six, months' notice, has the option of redeeming the loan. By such means advantage may be taken by the Government during the period of opportunities that may offer for favourable renewals. Particulars concerning the due dates of the loans of the several States outstanding on 30th June, 1921, are given in the following table.

Those loans in the case of which the Government has the option of redemption during a specified period have been in each instance classified according to the latest date of maturity :—

DUE DATES OF THE PUBLIC DEBTS OF THE SEVERAL STATES OUTSTANDING ON 30th JUNE, 1921.

Due Dates.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Total.
	£	£	£	£	£	£	£
Overdue	5,835	1,000	600				7,435
1921	5,235,543	3,823,040	49,490	1,004,264	168,825	728,738	11,009,900
1922	9,433,900	12,710,125	3,955,730	3,685,762	2,066,960	686,966	32,539,443
1923	9,125,386	17,189,789	98,980	3,366,658	1,017,310	605,515	31,404,138
1924	29,651,550	4,517,437	13,259,614	3,498,773	858,930	482,654	52,269,958
1925	3,990,794	8,490,437	12,098,480	3,116,628		1,726,540	30,422,903
1926	415,000	5,239,560	912,280	2,556,468	1,922,305	528,526	11,574,139
1927	15,633,626	2,055,450	4,441,730	2,575,681	5,550,500	1,118,170	31,375,157
1928	36,000	965,825	546,080	1,026,778		590,628	5,165,311
1929	169,040	827,361	192,080	221,618		470,454	1,880,553
1930	2,799,420	1,944,800	4,200,480	302,675		108,315	9,355,690
1931		1,845,288	98,980	450		80,049	1,524,767
1932	13,076,000	929,550	98,980	1,225	1,380,540	19,559	15,505,854
1933	9,686,300	8,000,000	98,980	368,912	716,708	20,831	10,891,731
1934	3,000,000	3,000,000	98,980	1,043,421	1,866,318	21,134	9,029,853
1935	17,500,000		98,980	1,478,499	8,408,185	164,718	27,650,382
1936		300,000	2,135,320	4,250,380	1,240,000	23,337	7,949,037
1937			98,980	15,586		34,084	148,650
1938			98,980	92,383	548,765	24,678	764,806
1939			98,980	2,569,499	106,603	25,655	2,800,737
1940	6,500,000	248,900	2,098,980	3,014,860	1,500,000	5,696,291	19,059,031
1941		324,380	561,280			28,028	913,668
1942		485,100	113,980			28,824	627,904
1943		3,600	98,980			29,968	132,548
1944		400	98,980			31,156	130,536
1945			6,327,770			32,390	6,360,160
1946		217,400	98,980			53,675	370,055
1947			4,597,673		2,000,000	55,010	6,652,683
1948			98,980			28,708	127,688
1949		11,699,471	98,980			28,396	11,826,847
1950	12,250,000		7,045,580			2,829,469	22,125,049
1951			1,098,580			30,584	1,129,164
1952			98,980			31,740	130,720
1953			2,246,789			32,460	2,279,249
1954		123,874	98,980			17,195	240,049
1955			98,980		4,437,000	17,803	4,553,783
1956			98,980			12,249	111,229
1957			98,980				98,980
1958			98,980				98,980
1959			98,980				98,980
1960		2,979,700	2,098,980	3,000,000	1,000,000		9,078,680
1961			98,980				98,980
1962	10,500,000		98,980		6,000,000		16,598,980
1963			98,980				98,980
1964			98,980		1,566,000		1,664,980
1965			98,980				98,980
1966			98,980				98,980
1967			98,980				98,980
1968			98,980				98,980
1969			98,980				98,980
1970			2,098,980				2,098,980
1971			98,980				98,980
1972			98,980				98,980
1973			98,980				98,980
1974			98,980				98,980
1975			98,980				98,980
1976			49,549				49,549
Interminable ..	532,890						532,890
Annual drawings ..					62,400		62,400
Indefinite ..	14,795,208	16,895,318	6,787,727	11,366,034	6,621,818	2,331,809	58,797,914
Total ..	164,336,492	97,317,831	80,382,052	48,556,552	49,039,667	18,776,306	458,408,900

9. **Sinking Funds.**—The practice of providing for the ultimate extinction of the public debt by means of the creation of sinking funds, receiving definite annual contributions from Consolidated Revenue, and accumulating at compound interest, has only been consistently adopted in the case of Western Australia. This State has established, in connexion with each of its loans, sinking funds varying from 1 per cent. to 3 per cent. per annum of the nominal amount of the loan. These funds are placed in the hands of trustees in London, by whom they are invested in the securities of the British, Indian, and Colonial Governments, and applied from time to time to the redemption of loans falling due. In the remaining States the sinking fund provision made is varied, consisting in certain instances of the revenues from specified sources, in others of the Consolidated Revenue Fund surplus, and in others again of fixed annual amounts. In the following table are given particulars of the sinking funds of each State, and the net indebtedness of each after allowance for sinking fund has been made, the details given being those for 30th June, 1921 :—

STATE SINKING FUNDS AND NET INDEBTEDNESS, 30th JUNE, 1921.

State.	Gross Indebtedness.	Sinking Fund.	Net Indebtedness.	Net Indebtedness per Head.
	£	£	£	£ s. d.
New South Wales ..	164,336,492	409,988	163,926,504	78 0 2
Victoria ..	97,317,831	2,579,019	94,738,812	61 13 7
Queensland ..	80,382,052	376,899	80,005,153	104 0 10
South Australia ..	48,556,552	1,438,415	47,118,137	94 14 1
Western Australia ..	49,039,667	7,641,564	41,398,103	124 7 6
Tasmania ..	18,776,306	815,835	17,960,471	84 14 6
Total ..	458,408,900	13,261,720	445,147,180	81 11 11

10. **Total Public Debt, Commonwealth and States.**—With the object of setting out the entire liability of the Australian public, the Commonwealth and State debts have been brought together into one statement in the appended table. It will be noticed that there is a column headed “deduction for debts counted twice.” This includes transferred properties for every year, and advances made by the Commonwealth to the States, exclusive of the advance from the proceeds of the note issue.

PUBLIC DEBT OF AUSTRALIA FOR FIVE YEARS, 1916-17 TO 1920-21.

Year ended 30th June.	Public Debt of Commonwealth	Public Debt of States.	Total of two preceding Columns.	Deduction for Debts Counted Twice.	Balance being Public Debt of Australia.	Public Debt per Capita.
	£	£	£	£	£	£
1917..	169,229,557	372,517,624	541,747,181	18,289,739	523,457,442	106 8 10
1918..	284,055,069	392,540,161	676,595,230	23,202,515	653,392,715	131 2 7
1919..	325,770,747	396,356,149	722,126,896	27,952,619	694,174,277	136 12 1
1920..	381,309,905	417,309,772	798,619,677	28,190,462	770,429,215	145 4 10
1921..	401,720,024	458,408,900	860,128,924	47,577,231	812,551,693	148 17 0

On pages 671 to 674 will be found a series of graphs illustrating the rise in the revenue public debt, and taxation of the Commonwealth and States since 1902, the year 1901-2 being the first complete financial year since Federation.

11. **Commonwealth and State Taxation Acts.**—A review in summarized form of the legislation dealing with these matters appeared in Official Year Book No. 14, pp. 722-45. Limits of space preclude its repetition in the present issue.

SECTION XXI.

PRIVATE FINANCE.

§ 1. Currency.

1. **The Three Australian Mints.**—Soon after the discovery of gold in Australia steps were taken for the establishment of a branch of the Royal Mint in Sydney. The formal opening took place on the 14th May, 1855. The Melbourne branch of the Royal Mint was opened on the 12th June, 1872, and the Perth branch on the 20th June, 1899. The States of New South Wales, Victoria, and Western Australia provide an annual endowment, in return for which the mint receipts are paid into the respective State Treasuries, and it may be said that, apart from expenditure on buildings, new machinery, etc., the amounts paid into the Treasuries fairly balance the mint subsidies.

2. **Receipts and Issues in 1920.**—(i) *Assay of Deposits Received.* The deposits received during 1920 at the Sydney Mint reached a gross weight of 152,289 ozs.; at the Melbourne Mint, a gross weight of 215,549 ozs.; and at the Perth Mint, a gross weight of 738,682 ozs. The average composition of these deposits in Sydney was, gold 964.0, silver 25.4, base 10.6 in every 1,000 parts; Melbourne, gold 873.3, silver 73.3, base 53.4 in every 1,000 parts; and Perth, gold 793.3, silver 147.2, base 59.5 in every 1,000 parts. As many parcels have, however, undergone some sort of refining process before being received at the mint, the average assay for gold shews higher in these figures than for gold as it naturally occurs.

(ii) *Issues.* The Australian mints, besides issuing gold coin in the shape of sovereigns and half-sovereigns, also issue gold bullion, partly for the use of local manufacturers (jewellers and dentists), and partly for export, India taking annually a considerable quantity of gold cast into 10-oz. bars. Owing, however, to the prohibition by the Commonwealth Government of the export of gold, the issue of bars for India ceased in July, 1916. The issues during 1920 are shewn in the table below:—

ISSUES OF GOLD FROM AUSTRALIAN MINTS DURING 1920.

Mint.	Coin.			Bullion.	Total.
	Sovereigns.	Half-sovereigns.	Total.		
	£	£	£	£	£
Sydney ..	360,000	..	360,000	109,405	469,405
Melbourne ..	530,266	..	530,266	305,837	836,103
Perth ..	2,421,196	53,208	2,474,404	8,680	2,483,084
Total ..	3,311,462	53,208	3,364,670	423,922	3,788,592

In addition to the issue of gold, the Sydney and Perth mints distribute silver and bronze Australian coins struck elsewhere.

(iii) *Withdrawals of Worn Coin.* The mints receive light and worn Imperial coin for recoinage, gold being coined locally, while silver is forwarded to London. The value of worn silver coins received during 1920 was as follows:—Sydney, £56,500; Melbourne, £14,043; and Perth, nil.

3. **Total Receipts and Issues.**—(i) *Receipts.* The total quantities of gold received at the three mints since their establishment are stated in the gross as follows:—Sydney, 39,914,339.58 ozs.; Melbourne, 39,215,895.19 ozs.; and Perth, 27,405,664.96 ozs. As the mints pay for standard gold (22 carats) at the rate of £3 17s. 10½d. per oz., which corresponds to a value of £4 4s. 11½d. per oz. fine (24 carats), it is possible to arrive at an estimate of the number of fine ounces from the amounts paid for the gold received.

These amounts were:—Sydney, £148,045,899; Melbourne, £153,785,247; Perth, £96,178,456; corresponding to—Sydney, 34,852,967 ozs. fine; Melbourne, 36,204,124 ozs. fine; and Perth, 22,642,340 ozs. fine. In the case of deposits containing over a certain minimum of silver, the excess is paid for at a rate fixed from time to time by the Deputy Master of the branch Mint concerned.

(ii) *Issues.* The total values of gold coin and bullion issued by the three mints are shewn in the table hereafter. It may be said that rather more than one-half of the total gold production of Australasia has passed through the three Australian mints, the production of the Commonwealth States to the end of 1920 being valued at £605,299,621, and that of New Zealand at approximately £90,000,000, or a total of about £695,000,000.

TOTAL ISSUES OF GOLD FROM AUSTRALIAN MINTS TO END OF 1920.

Mint.	Coin.			Bullion.	Total.
	Sovereigns.	Half-sovereigns.	Total.		
	£	£	£	£	£
Sydney ..	135,545,500	4,781,000	140,326,500	7,072,658	147,399,158
Melbourne ..	140,827,516	946,780	141,774,296	12,048,384	153,822,680
Perth ..	87,618,393	367,338	87,985,736	8,186,717	96,172,453
Total ..	363,991,414	6,095,118	370,086,532	27,307,759	397,394,291

(iii) *Withdrawals of Worn Coin.* Complete figures as to the withdrawal of gold coin are as follows:—Sydney, £1,084,381; Melbourne, £751,781 (since and including 1890); and Perth, £1,403.

Withdrawals of worn silver coin amounted to £835,373 in Sydney, to £586,681 in Melbourne, and to £54,812 in Perth.

4. *Standard Weight and Fineness of Coinage.*—The coinage of the Commonwealth, so far as the coins minted are concerned, is the same as that of the United Kingdom, and the same provisions as to legal tender hold good, viz., while gold coins are legal tender to any amount, silver coins are only so for an amount not exceeding forty shillings, and bronze coins up to one shilling. As will be seen from the table below, the standard weights of the sovereign and half-sovereign are respectively 123.27447 grains and 61.63723 grains, but these coins will pass current if they do not fall below 122.5 grains and 61.125 grains respectively.

STANDARD WEIGHT AND FINENESS OF COMMONWEALTH COINAGE.

Denomination.	Standard Weight.	Standard Fineness.
	Grains.	
GOLD—		
Sovereign ..	123.27447	} Eleven-twelfths fine gold, viz. :— Gold .. 0.91667 } 1.00000 Alloy .. 0.08333 }
Half-sovereign ..	61.63723	
SILVER—		
Florin ..	174.54545	} Thirty-seven-fortieths fine silver, viz. :— Silver .. 0.925 } 1.000 Alloy .. 0.075 }
Shilling ..	87.27272	
Sixpence ..	43.63636	
Threepence ..	21.81818	
BRONZE—		
Penny ..	145.83333	} Mixed metal, viz. :— Copper .. 0.95 } 1.00 Tin .. 0.04 } Zinc .. 0.01 }
Halfpenny ..	87.50000	

5. *Prices of Silver and Australian Coinage.*—(i) *Prices of Silver.* The value of silver has greatly decreased since its demonetisation and restricted coinage in almost the whole of Europe. A noticeable increase has, however, taken place for some years after 1915, the price of silver following the general trend of world prices. Its average price in the London market in recent years is shewn in the table on page 340.

(ii) *Profits on Coinage of Silver.* As sixty-six shillings are coined out of one pound troy of standard silver, the silver required to produce £3 6s. of coin was only worth on the average about £3 1s. 6d. during 1920; the difference represents, therefore, the gross profit or seigniorage made on the coinage of every £3 6s. Negotiations took place for a number of years between the Imperial authorities and the Governments of New South Wales and Victoria, which in 1898 resulted in permission being granted to the two Governments named to coin silver and bronze coin at the Sydney and Melbourne Mints for circulation in Australia. No immediate steps were, however, taken in the matter, and as section 51 of the Commonwealth Constitution makes legislation concerning "currency, coinage, and legal tender" a Federal matter, the question remained in abeyance until the latter part of 1908, when the Commonwealth Treasurer announced his intention of initiating the coinage of silver in the future. Since 1916 silver and bronze coins have been minted in Australia on behalf of the Commonwealth Treasury.

A special article on the subject of Decimal Coinage appears at the end of this section.

§ 2. Banking.

1. *Banking Facilities.*—*Head Offices of Banks.* Of the nineteen banks trading in the Commonwealth on 30th June, 1921, three have their head offices in London, viz., the Bank of Australasia; the Union Bank of Australia Limited; and the English, Scottish and Australian Bank Limited. The head offices of the following four banks are in Sydney—The Commonwealth Bank of Australia, The Bank of New South Wales, the Commercial Banking Company of Sydney Limited, and the Australian Bank of Commerce Limited. Four banks have their head offices in Melbourne, viz., the National Bank of Australasia Limited, the Commercial Bank of Australia Limited, the Bank of Victoria Limited, and the Royal Bank of Australia Limited. Brisbane is the headquarters of two banks, viz., the Queensland National Bank Limited, and the Bank of Queensland Limited. Only one bank has at present its head office in Adelaide, viz., the Bank of Adelaide; and one in Perth, viz., the Western Australian Bank. The Bank of New Zealand has its headquarters in Wellington. Of the three remaining banks, the Comptoir National d'Escompte de Paris has its head office in Paris, the Ballarat Banking Company in Ballarat, and the Yokohama Specie Bank in Yokohama, Japan. It is proposed, in the few instances where the banks are referred to by name, to arrange them in the order just given, with the exception of the Commonwealth Bank, which is placed first.

It is worthy of note that the amalgamations, which have been such a feature in British banking of late years, have appeared in Australia, and materially reduced the number of competitive joint stock banks. During the calendar years 1917 and 1918 the following were recorded:—(a) the Royal Bank of Queensland Limited with Bank of North Queensland Limited; (b) City Bank of Sydney with Australian Bank of Commerce Limited; (c) National Bank of Tasmania Limited with Commercial Bank of Australia Limited; and (d) National Bank of Australasia Limited with Colonial Bank of Australasia Limited. This accounts for the reduction in number of independent joint stock banks operating in Australia.

A further amalgamation was announced in August, 1920, viz., the London Bank of Australia Ltd. and the English, Scottish and Australian Bank Ltd. The amalgamated banks further strengthened their position by absorbing the Commercial Bank of Tasmania,

which from May, 1921, ceased to exist independently. Finally, the National Bank of Australasia has absorbed the Bank of Queensland, which, however, appears in the present returns since it was in existence on 30th June, 1921.

2. **Banking Legislation.**—Under Section 51 of the Commonwealth Constitution Act the Commonwealth Parliament has power to legislate with respect to “Banking, other than State banking, also State banking extending beyond the limits of the State concerned, the incorporation of banks, and the issue of paper money.” For a few years the only Commonwealth banking legislation passed was Act No. 27 of 1909, “An Act relating to Bills of Exchange, Cheques, and Promissory Notes,” which came into force on the 1st February, 1910. In the session of 1910, however, two Acts relating to banking were passed by the Federal Parliament. The first was the Australian Notes Act No. 11 of 1910, assented to on the 16th September, 1910, and proclaimed 1st November, 1910; and the second the Bank Notes Tax Act No. 14, 1910, assented to on 10th October, 1910, and proclaimed 1st July, 1911. These Acts have been fully discussed in recent issues of the Official Year Book. The former Act was superseded in December, 1920, when the control of the Australian Note Issue was handed over by the Commonwealth Treasury to the Commonwealth Bank. The Note Issue Department of the Bank, so created, is administered by a Board including the Governor and Secretary of the Commonwealth Bank, a leading Treasury official, and two outside financial experts.

The Act under which the transfer was effected requires not less than one-fourth of the amount of notes outstanding to be held in gold coin and bullion, and the remainder or any part thereof—

- (a) On deposit with any other Bank;
- (b) In securities of the United Kingdom, or of the Commonwealth, or of a State;
- (c) In Trade Bills with a currency of not more than 120 days.

On 31st December, 1920, immediately after the transfer, the Note Issue amounted to £58,713,251, of which £26,965,795 was in the hands of the public, and £31,747,456 in the banks. The assets included £23,714,983 in gold coin and bullion.

The Notes Act and the Bank Notes Act were supplemented in the following year by the passing of No. 18 of 1911, “An Act to provide for a Commonwealth Bank,” which passed both Houses and was assented to on 22nd December, 1911. The early steps in the foundation of the Bank have been described in previous issues from No. 6 to No. 10 inclusive, and will not be repeated here.

As the initial expenses of the bank were heavy, and as no capital was advanced, the early operations resulted in a small loss. This was debited to the profit and loss account of the bank, and the increasing prosperity of the institution was shewn by the way in which the original debit was reduced, until on 30th June, 1915, it was entirely extinguished. The following table shews the results of the transactions of the bank for the last five financial years:—

COMMONWEALTH BANK.—NET RESULT OF TRANSACTIONS, 1917 TO 1921.

Net Result at 30th June—				General Bank.	Savings Bank.	Entire Bank.
				£	£	£
1917	..	..	..	Cr. 522,467	Cr. 3,825	Cr. 526,292
1918	..	..	..	Cr. 991,934	Cr. 84,092	Cr. 1,076,026
1919	..	..	..	Cr. 1,726,532	Cr. 196,438	Cr. 1,922,970
1920	..	..	..	Cr. 2,426,067	Cr. 330,038	Cr. 2,756,105
1921	..	..	..	Cr. 3,082,249	Cr. 369,116	Cr. 3,451,365

It will be seen from the above that the general bank became profitable at a much earlier stage than the savings bank. According to the provisions of section 30 of the Bank Act, the net profit of £3,451,365 disclosed at 30th June, 1921, was divided equally

between a bank reserve fund and a redemption fund. The reserve fund is available for the payment of any liabilities of the bank. The redemption fund is available for the repayment of any money advanced to the bank by the Treasurer, or for the redemption of debentures or stock which may be issued by the bank; and any excess may be used for the purpose of the redemption of any Commonwealth debts, or State debts taken over by the Commonwealth.

The Acts under which the various banks are incorporated are not all of the same nature, but it may be stated that while most of the older banks were incorporated by special Acts, *e.g.*, the Bank of New South Wales, by Act of Council 1817; the Bank of Australasia, by Royal Charter; the Bank of Adelaide, by Act of the South Australian Parliament; and the Bank of New Zealand, by Act of the General Assembly of New Zealand, the newer banks are generally registered under a "Companies Act," or some equivalent Act. This is also the case with those banks which, after the crisis of 1893, were reconstructed.

3. Capital Resources of Banks.—The paid-up capital of the cheque-paying banks, together with their reserve funds, the rate per cent., and the amount of their last dividends, are shewn in the table hereunder. The information relates to the balance-sheet last preceding the 30th June, 1921. In regard to the reserve funds it must be stated that in the case of some of the banks these are invested in Government securities, while in other cases they are used in the ordinary business of the banks, and in a few instances they are partly invested and partly used in business.

CAPITAL RESOURCES OF CHEQUE-PAYING BANKS, 1920-21.

Bank.	Paid-up Capital.	Rate per cent. per annum of last Dividend and Bonus.	Amount of last Half-yearly Dividend and Bonus.	Amount of Reserved Profits.
	£	%	£	£
Commonwealth Bank of Australia	3,500,000	10 and Bonus 3	455,000	3,451,365
Bank of Australasia	2,500,000	15	187,500	3,220,874
Union Bank of Australia Ltd.	1,255,900	10	62,795c	2,711,716
English, Scottish and Australian Bank Ltd. ..	4,979,380	10 and 10s. bonus	248,260	1,311,372
Bank of New South Wales	2,909,025	10	125,000	3,551,099
Commercial Banking Coy. of Sydney Ltd. ..	1,200,000	6	36,000	2,302,262
Australian Bank of Commerce Ltd.	2,000,000	10	100,000	228,813
National Bank of Australasia Ltd.	2,319,667s	4	42,347	1,376,625
Commercial Bank of Australia Ltd.	1,478,010s	9	66,510	16,258
Bank of Victoria Ltd.	750,000	10	37,500	601,099
Royal Bank of Australia Ltd.	798,003	10	19,937d	465,919
Queensland National Bank Ltd.	450,000	7	15,750	331,165
Bank of Queensland Ltd.	625,000	10	31,250	73,026
Bank of Adelaide	250,000	20	25,000	642,179
Western Australian Bank				753,369
Bank of New Zealand	3,904,989	2s. a share A Preferential, 10 B Preferential, 13½ Ordinary	412,500	1,886,276
Comptoir National d'Escompte de Paris ..	10,000,000	10	1,000,000	2,747,086
Ballarat Banking Coy. Ltd.	127,500	7½	4,781	98,224
Yokohama Specie Bank	10,000,000	12	588,560	5,765,000
Total	49,047,474	..	..	31,532,727

(a) Subject to estimated deficiency in connection with Special Assets Trusts Coy. Ltd. (b) £416,760 preferential, £1,061,250 ordinary. (c) For twelve months. (d) Dividend for quarter.

4. Liabilities and Assets of Banks.—(i) *Liabilities of Banks for Quarter ended 30th June, 1921.* As already stated, the banks transacting business in any State are obliged, under the existing State laws, to furnish a quarterly statement of their assets and liabilities, which contains the averages of the weekly statements prepared by the bank for

that purpose, and they have, during the years 1908 to 1921, furnished quarterly statements to the Commonwealth Statistician. As all other financial returns in this work embrace, so far as possible, a period ended 30th June, 1921, it seems advisable to give the banking figures for the quarter ended on that date, and, where they are shown for a series of years, similarly to use the figures for the June quarter of each year. The liabilities are those to the general public, and are exclusive of the banks' liabilities to their shareholders, which are shown in the preceding table:—

AVERAGE LIABILITIES OF BANKS IN EACH STATE OF THE COMMONWEALTH AND THE NORTHERN TERRITORY FOR THE QUARTER ENDED 30th JUNE, 1921.

State.	Notes in Circulation not Bearing Interest.	Bills in Circulation not Bearing Interest.	Bills Due to Other Banks.	Deposits.			Total Liabilities.
				Not Bearing Interest.	Bearing Interest. (b)	Total.	
	£	£	£	£	£	£	£
New South Wales	71,654	979,077	2,682,336	53,044,963	54,631,455	107,676,418	111,409,485
Victoria ..	88,975	515,450	1,174,251	36,225,597	49,530,919	85,756,516	87,535,192
Queensland ..	(a)	638,455	640,663	18,774,573	27,994,642	46,769,215	48,048,333
South Australia ..	24,325	39,707	589,067	9,354,107	12,233,566	22,087,673	22,740,772
Western Australia	26,362	199,391	349,543	6,220,511	6,028,143	12,248,654	12,823,950
Tasmania	2,552	19,937	296,726	3,571,635	4,165,163	7,736,798	8,056,013
Northern Territory	..	57	13,184	97,928	183,149	281,077	294,318
Total ..	213,868	2,392,074	5,745,770	127,789,314	154,767,037	282,556,351	290,908,063

(a) In Queensland, Treasury Notes were used instead of bank notes.

(b) Including £34,376,272 Commonwealth Savings Bank Deposits.

(ii) *Assets of Banks for Quarter ended 30th June, 1921.* The average assets of the banks are shown in the following table:—

AVERAGE ASSETS OF BANKS IN EACH STATE OF THE COMMONWEALTH AND THE NORTHERN TERRITORY FOR THE QUARTER ENDED 30th JUNE, 1921.

State.	Coined Gold and Silver and other Metals.	Gold and Silver in Bullion or Bars.	Government and Municipal Securities.	Landed and House Property.	Notes and Bills of other Banks.	Balances Due from other Banks.	Discounts, Over- drafts, and all other Assets.	Austra- lian Notes.	Total Assets.
	£	£	£	£	£	£	£	£	£
N.S.W.	9,569,184	360,738	22,341,392	2,573,628	673,742	2,734,914	82,317,843	11,862,494	132,433,935
Victoria	5,207,833	44,332	6,581,467	1,521,271	825,341	1,274,804	57,826,082	11,627,883	84,909,013
Q'land	2,281,556	8,174	16,585,258	940,008	437,951	1,077,297	23,267,979	4,234,956	48,833,179
S. Aust.	1,802,995	53	522,305	317,544	229,383	510,937	13,623,176	3,351,903	20,363,296
W. Aust.	1,516,373	145,990	797,924	222,544	149,956	718,678	10,909,657	2,101,103	16,562,225
Tasmania	680,569	53	1,574,583	160,394	45,139	304,645	5,462,908	1,310,200	9,538,491
Nor. Ter.	7,895	1,087	..	1,000	45,003	23,283	23,115	4,373	105,756
Total	21,066,405	560,427	48,402,929	5,736,389	2,406,515	6,644,558	193,435,760	34,492,912	312,745,895

(iii) *Liabilities of Banks for June Quarters, 1917 to 1921.* In the subjoined table, which shows the average liabilities of the banks for the quarters ended 30th June, 1917 to 1921, for the Commonwealth as a whole, it will be seen that the growth in total liabilities is almost entirely due to an increase in the deposits, and that deposits not bearing interest and deposits bearing interest have both shared in that increase:—

AVERAGE LIABILITIES OF BANKS IN THE COMMONWEALTH FOR THE QUARTER ENDED 30th JUNE, IN THE YEARS 1917 TO 1921.

Year.	Notes in Circulation not Bearing Interest.	Bills in Circulation not Bearing Interest.	Balances Due to Other Banks.	Deposits.			Total Liabilities.
				Not Bearing Interest.	Bearing Interest. (a)	Total.	
	£	£	£	£	£	£	£
1917	244,806	1,439,019	3,660,853	105,390,961	103,739,427	209,130,388	214,475,066
1918	229,639	1,726,045	4,486,497	112,262,321	112,504,432	224,766,753	231,208,934
1919	221,755	1,813,390	6,540,609	118,988,767	130,069,687	249,058,454	257,634,008
1920	224,130	2,343,713	4,505,117	133,912,800	131,715,792	265,628,592	272,701,552
1921	213,868	2,392,074	5,745,770	127,789,314	154,767,037	282,556,351	290,908,063

(a) Including Commonwealth Savings Bank Deposits.

(iv) *Assets of Banks for June Quarters, 1917 to 1921.* A similar table shewing the average assets of the banks for the June quarters of each of the years 1917 to 1921 is shewn below.

AVERAGE ASSETS OF BANKS IN THE COMMONWEALTH FOR THE QUARTER ENDED 30th JUNE, IN THE YEARS 1917 TO 1921.

Year.	Coined Gold and Silver and other Metals.	Gold and Silver in Bullion or Bars.	Landed and other Property.	Notes and Bills of other Banks.	Balances Due from other Banks.	All other Debts Due to the Banks. (a)	Total Assets.
	£	£	£	£	£	£	£
1917	21,685,410	1,156,033	5,288,199	2,035,297	5,429,884	176,739,172	212,333,995
1918	21,518,264	889,032	5,300,834	2,149,799	6,087,990	200,386,561	236,332,480
1919	21,341,026	793,883	5,215,550	2,274,422	7,794,735	240,527,120	277,950,736
1920	20,704,078	625,786	5,375,279	2,909,031	7,819,654	232,440,445	263,874,273
1921	21,066,405	560,427	5,736,389	2,406,515	6,644,558	276,331,601	312,745,895

(a) Including Government and Municipal securities, and Australian notes.

As the table shews, the increase in the total amount of assets is mainly due to advances. The great increases of 1918 and 1919 are almost exactly accounted for by the increase in the advances, due largely to the action of the banks in financing wheat and other commodities awaiting shipment; also in assisting individuals to invest in war loans. In 1920 the liabilities exceeded the assets by about three millions. This was owing to the excess of exports over imports, and the fact that payments had been made by the British Government for wheat and wool in anticipation of shipments not then effected.

5. Percentage of Coin, Bullion, and Australian Notes to Liabilities at Call.—

(i) *Commonwealth.* Although it is not strictly correct to assume that the division of deposits into those bearing interest and not bearing interest would in every case coincide with a division into fixed deposits and current accounts, the division, in default of a better one, must be adopted, and in the following table "liabilities at call" are therefore understood to include the note circulation of the banks and the deposits not bearing interest. Since 1912, however, the former item has steadily decreased, and is now almost negligible as compared with the latter.

PERCENTAGE OF COIN, BULLION, AND AUSTRALIAN NOTES TO LIABILITIES AT CALL, COMMONWEALTH BANKS, 1917 TO 1921.

Year.	Liabilities at Call.		Coin, Bullion, and Australian Notes.	Percentage to Liabilities at Call.
	£		£	%
1917	105,635,767		53,777,126	50.91
1918	112,491,960		56,359,868	50.10
1919	119,210,322		57,894,016	48.56
1920	134,136,930		55,940,627	41.70
1921	128,003,182		56,119,744	43.84

It would appear from the figures just given that the banks generally consider it advisable to hold about half the amount of liabilities at call in coin, bullion, and notes. There was a decline from this standard in 1920 owing to a substantial rise in the deposits not bearing interest, but the percentage rose again in 1921.

(ii) *Queensland Treasury Notes.* No bank notes are issued by any of the banks in Queensland, where a Treasury note took the place of bank notes from 1893. These Treasury notes are disregarded in the quarterly statements of the banks; according to Treasury returns the amount outstanding on 30th June, 1921, was £23,690. Under the Australian Notes Act, previously referred to, the issue of notes by a State is now prohibited.

(iii) *States.* The proportion of coin, bullion, and Australian notes to liabilities at call varies considerably in the different States, and even sometimes in the same State from year to year. A table is appended shewing the percentage for each State for the quarter ended 30th June in each of the years 1917 to 1921 :—

PERCENTAGE OF COIN, BULLION, AND AUSTRALIAN NOTES TO LIABILITIES AT CALL, COMMONWEALTH BANKS, 1917 TO 1921.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
	%	%	%	%	%	%	%	%
1917 ..	49.34	49.51	46.71	54.11	80.41	62.89	11.50	50.91
1918 ..	48.06	48.95	51.55	54.81	57.06	61.30	12.66	50.10
1919 ..	50.52	45.67	48.35	43.32	60.21	55.92	11.05	48.56
1920 ..	43.07	38.36	39.69	45.25	50.75	41.17	14.41	41.70
1921 ..	41.03	46.48	34.75	52.18	60.25	55.70	13.64	43.84

6. *Deposits and Advances.*—(i) *Total Deposits.* The total amount of deposits held by the banks shews a steady advance during the period under review.

TOTAL DEPOSITS IN COMMONWEALTH BANKS, 1917 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£	£	£	£	£	£	£	£
1917 ..	84,049,266	65,241,651	29,215,467	15,812,959	8,519,498	5,966,908	324,639	209,130,388
1918 ..	86,489,590	68,663,889	34,133,083	18,594,391	9,770,507	6,750,979	364,314	224,766,753
1919 ..	93,865,093	78,337,458	35,477,051	23,650,545	10,668,143	6,720,381	344,583	249,053,254
1920 ..	103,373,262	86,922,563	32,387,302	22,421,647	12,502,476	7,701,223	320,119	265,623,592
1921 ..	107,676,418	85,756,316	46,769,215	22,087,673	12,248,654	7,736,798	281,077	282,556,351

(ii) *Deposits per Head of Population.* To shew the extent to which the population makes use of the banking facilities afforded to it, a table is given hereunder shewing the

amount of total deposits per head of mean population for each of the years 1917 to 1921. The figures must not be taken as representative of the savings of the people, as a large proportion of the deposits is non-interest-bearing and therefore presumably used in the business of the banks' customers, together with a small part of the interest-bearing deposits.

DEPOSITS PER HEAD OF POPULATION IN COMMONWEALTH BANKS, 1917 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1917 ..	44 19 9	46 9 9	43 2 2	36 14 7	27 12 9	30 2 5	64 12 10	42 15 1
1918 ..	45 7 2	48 10 5	49 13 3	42 6 11	31 9 8	33 4 0	71 4 6	45 5 1
1919 ..	48 0 4	53 13 9	50 4 2	52 6 6	33 5 8	31 19 9	71 19 1	48 14 9
1920 ..	50 1 7	57 11 11	43 9 3	46 3 5	38 0 2	36 12 6	75 11 8	49 13 5
1921 ..	51 5 3	55 18 4	61 5 7	44 10 0	36 16 6	36 4 7	72 1 1	51 18 3

(iii) *Total Advances.* In the quarterly statements furnished by the banks the column headed "all other debts due to the banks," is made up of such miscellaneous items as bills discounted, promissory notes discounted, overdrafts on personal security, overdrafts secured by deposit of deeds or by mortgage, etc. The quarterly returns furnished to the Commonwealth Statistician in 1908 and 1909 provided for a division of the amounts contained under this heading into a number of sub-headings, but all the banks were not in a position to make the necessary division, so that under present circumstances it is impossible to separate these items, and the total amounts contained in the column must, therefore, be treated as advances. The following table shews the totals for each State during the years 1917 to 1921. Part of the very large rise in 1917-19 is due to the advances made by the banks to their clients, to enable them to subscribe to the Commonwealth War Loans.

ADVANCES BY COMMONWEALTH BANKS, 1917 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£	£	£	£	£	£	£	£
1917 ..	48,592,808	36,929,442	17,753,800	8,459,562	9,057,389	2,988,916	5,935	123,787,852
1918 ..	56,176,269	42,185,873	18,685,598	10,877,107	9,183,968	3,265,637	36,006	140,410,458
1919 ..	70,391,172	53,645,558	21,773,778	17,280,249	10,562,174	3,755,362	14,532	177,952,825
1920 ..	68,171,203	45,642,462	21,485,247	10,676,319	10,744,799	3,957,318	16,193	160,693,541
1921 ..	82,317,843	57,826,082	23,267,979	13,628,176	10,909,657	5,462,908	23,115	193,435,760

(iv) *Proportion of Advances to Deposits.* The percentage borne by advances to total deposits shews to what extent the needs of one State have to be supplied by the resources of another State, and where the percentage for the Commonwealth as a whole exceeds 100 (as it did in the early years of the century), the banks must have supplied the deficiency from their own resources, or from deposits obtained outside the Commonwealth. The following figures shew, however, that the banking business of the Commonwealth has been self-contained during the period under review:—

PERCENTAGE OF ADVANCES TO TOTAL DEPOSITS, COMMONWEALTH BANKS, 1917 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	All States.
	%	%	%	%	%	%	%	%
1917 ..	57.81	56.60	60.77	53.50	106.31	50.09	1.83	59.19
1918 ..	64.95	61.44	54.74	58.50	94.00	48.37	9.88	62.47
1919 ..	75.52	68.48	61.43	73.06	99.05	56.33	4.22	71.45
1920 ..	65.95	52.40	66.34	47.61	85.94	51.39	5.06	60.50
1921 ..	76.45	67.43	49.75	61.70	89.07	70.61	8.22	68.46

7. Clearing Houses.—The Sydney Banks' Exchange Settlement and the Melbourne Clearing House, at which two institutions settlements are effected daily between the banks doing business in New South Wales and Victoria respectively, publish figures of the weekly clearances effected. From these figures it appears that in 1921 the total clearances in Sydney amounted to £709,734,000, and in Melbourne to £609,335,000. Owing to the different distribution of the banking business in the two cities these figures do not, necessarily, afford a fair comparison of the volume of banking business transacted in Sydney and Melbourne. Returns for all Australian Clearing Houses for the last five years are shewn in the following table:—

YEARLY TOTAL OF BILLS, CHEQUES, ETC., PASSED THROUGH AUSTRALIAN CLEARING HOUSES, 1917 TO 1921.

Year.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.
	£	£	£	£	£
1917 ..	444,532,000	377,300,000	119,501,000	83,866,000	41,370,000
1918 ..	552,216,000	493,768,000	134,050,000	105,705,000	50,518,000
1919 ..	590,098,000	544,211,000	128,006,000	123,880,000	56,900,000
1920 ..	761,546,000	725,006,000	160,539,000	166,011,000	80,758,000
1921 ..	709,734,000	609,335,000	157,503,000	157,549,000	67,619,000

§ 3. Savings Banks.

1. General.—The total number of savings banks, with their branches and agencies, in the Commonwealth at the middle of 1921 was 2,371, distributed as follows:—New South Wales, 659; Victoria, 492; Queensland, 528;* South Australia, 331; Western Australia, 212; and Tasmania, 149.* These figures are exclusive of the Commonwealth Savings Bank, except in the States of Queensland and Tasmania, in which the Commonwealth Savings Bank absorbed the State Savings Banks. In the Northern Territory the Commonwealth Savings Bank alone is in operation.

In the following tables the figures for all the States except Tasmania refer to financial years ended 30th June. In the case of Tasmania, figures for the two joint-stock savings banks were made up to the last day of February in each year up to 1918–19, but in 1919–20 were made up to August, and will be so estimated in subsequent years. In the case of the Commonwealth Bank, figures are made up to the 30th June, 1921.

2. Depositors.—The total number of depositors, *i.e.*, of persons having accounts open, not of those making deposits, in each of the last ten years is shewn in the following table:—

NUMBER OF DEPOSITORS IN SAVINGS BANKS (b), 1916–17 TO 1920–21.

Year.	N.S.W.	Victoria. (a)	Q'land.	S. Aust. (a)	W. Aust. (a)	Tasmania.	N. Ter.	All States.
1916–17 ..	872,351	869,058	281,585	319,960	172,084	91,680	1,366	2,608,084
1917–18 ..	920,337	913,875	313,248	337,709	182,140	95,154	1,274	2,763,737
1918–19 ..	984,951	966,543	343,424	357,310	192,879	99,565	1,167	2,945,830
1919–20 ..	1,053,893	1,014,223	364,149	377,435	204,065	108,289	987	3,122,981
1920–21 ..	1,126,157	1,072,554	327,065	396,970	217,136	115,502	935	3,256,319

(a) Inclusive of depositors in penny savings banks.

(b) Inclusive of Commonwealth Savings Bank.

The fall in Queensland in 1920–21 is due to the amalgamation of the State and Commonwealth Savings Banks.

* These were the figures at the time of the absorption of the State Savings Banks by the Commonwealth.

The subjoined table shews the above figures in relation to the population of the States; it must, of course, be borne in mind that savings bank accounts are not restricted to the adult population, but that it is, on the contrary, a very usual practice to open accounts in the names of children. Even so, the proportion is a large one, amounting in the case of the Commonwealth to about three-fifths and rising in Victoria to nearly seven-tenths and in South Australia to four-fifths. In the case of this table and the one that follows, it may be pointed out that as it is possible for the same person to have accounts in both Commonwealth and State Savings Banks, the figures given are probably slightly in excess of the number of individual depositors.

**DEPOSITORS IN SAVINGS BANKS(a) PER 1,000 OF POPULATION,
1916-17 TO 1920-21.**

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter.	All States.
1916-17 ..	467	620	413	744	557	473	271	532
1917-18 ..	482	645	453	768	585	469	242	555
1918-19 ..	501	659	482	784	597	472	237	573
1919-20 ..	519	674	496	799	611	498	225	589
1920-21 ..	536	698	425	798	652	545	238	597

(a) Inclusive of Commonwealth Savings Bank.

3. Deposits.—The total amount of deposits in the savings banks of the six States reaches the large sum of one hundred and fifty-three million pounds, and would no doubt be even larger if the banks did not restrict interest-bearing deposits to certain limits. It must be remembered that though not granting facilities to draw cheques, the Australian savings banks practically afford the small tradesman all the advantages of a current account, in addition to which they also allow him interest on his minimum monthly balance, instead of charging him a small fee for keeping his account, as the ordinary banks do. The rates of interest allowed, and the limits of interest-bearing deposits, are as follows:—New South Wales, Government Savings Bank, 4 per cent. up to £500 and 3½ per cent. on the excess up to £1,000; Victoria, 4 per cent. on first £500, and on deposit stock up to £1,000; South Australia, 3½ per cent. on accounts closed during the year, and 4½ per cent. up to £350 on accounts remaining open; Western Australia, 3½ per cent. from £1 to £500, and 3 per cent. from £500 to £1,000; also 4 per cent. on deposit stock up to £1,000; Hobart Trustees' Savings Bank, 4½ per cent. up to £300; Launceston Trustees' Savings Bank, 4½ per cent. up to £150, and Commonwealth Savings Bank, 3½ per cent. on the first £1,000, and 3 per cent. upon another £300. The savings banks of the six States including the two trustee banks of Tasmania, have, for the further benefit of depositors, entered into a reciprocity arrangement, under which money deposited in one State may be drawn out in another State, even by telegraph.

The table below shews the total amounts at credit of depositors in each of the last five years:—

DEPOSITS IN SAVINGS BANKS(a), 1916-17 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£	£	£	£	£	£	£	£
1916-17 ..	40,836,747	31,581,266	14,725,959	11,351,343	5,846,109	2,695,274	102,348	107,139,046
1917-18 ..	43,039,012	34,598,186	16,501,325	12,899,036	6,290,027	2,917,235	95,071	116,339,892
1918-19 ..	47,070,342	38,772,024	17,510,975	14,803,237	7,002,473	3,255,393	81,097	128,525,541
1919-20 ..	49,933,535	42,317,863	17,909,571	15,496,514	7,258,384	3,930,181	57,106	136,903,154
1920-21 ..	57,394,441	48,970,989	18,587,942	16,317,353	7,663,440	4,159,502	53,790	153,147,457

(a) Inclusive of Commonwealth Savings Bank.

A comparison between the tables shewing the number of depositors and the amount of deposits reveals the fact that the average amounts to the credit of each depositor are considerably larger in some States than in others; in other words, that in one State a comparatively larger proportion of the population makes use of the savings banks, and that the natural result is a smaller amount to the credit of the individual depositor. Within the same State there is little variation in the figures from year to year, except that Victoria and South Australia have shewn a steady advance in the period under review.

AVERAGE AMOUNT PER DEPOSITOR IN SAVINGS BANKS(a), 1916-17 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1916-17..	46 16 10	36 6 9	52 5 10	35 9 5	33 19 0	29 7 10	74 18 6	41 1 3
1917-18..	46 15 3	37 17 2	52 13 7	38 3 11	34 10 8	30 13 2	74 12 6	42 1 11
1918-19..	47 15 9	40 2 3	50 19 9	41 8 7	36 8 2	32 19 11	69 9 8	43 12 7
1919-20..	47 7 7	41 14 6	49 3 8	41 1 2	35 11 7	36 5 10	57 17 2	43 16 9
1920-21..	50 19 4	45 13 2	56 16 8	41 2 1	35 5 10	36 0 3	57 10 7	47 0 7

(a) Inclusive of Commonwealth Savings Bank.

The average amount deposited per head of population shews a satisfactory increase during the period under review. Since 1908-9 it has practically doubled itself, the figures for South Australia being particularly noticeable.

SAVINGS BANKS DEPOSITS PER HEAD OF POPULATION, 1916-17 TO 1920-21.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	All States.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1916-17..	21 9 1	22 7 6	21 11 1	25 13 6	19 2 1	13 17 6	21 1 11	21 13 1
1917-18..	22 3 4	24 5 10	23 15 2	28 11 6	20 8 8	14 14 3	19 10 4	23 2 7
1918-19..	23 10 10	26 6 4	24 3 3	31 12 0	21 18 4	16 0 6	17 8 5	24 14 7
1919-20..	24 3 1	27 19 8	23 19 2	31 16 8	22 0 6	18 13 6	13 11 1	25 10 10
1920-21..	27 6 3	31 17 6	24 3 5	32 15 11	23 0 1	19 12 5	13 13 11	28 1 6

4. Annual Business.—The annual volume of business transacted by the Australian savings banks is very large when compared with the total amount of deposits. This is mainly due to the fact already pointed out that many accounts are used as convenient current accounts. Thus, during the last year of the period under review, the total amount deposited and withdrawn (exclusive of interest added) amounted to about 230 per cent. of the total amount of deposits at the end of the previous year, while the amount at credit of depositors (inclusive of interest added) increased by only about 12 per cent. during the same year. The following table shews the business transacted during the year 1920-21:—

SAVINGS BANKS TRANSACTIONS DURING THE YEAR 1920-21.

State.	Total Deposits at end of Year 1919-20.	Amounts Deposited during Year 1920-21.	Interest Added during Year 1920-21.	Total.	Amounts Withdrawn during Year 1920-21.	Total Deposits at end of Year 1920-21.
	£	£	£	£	£	£
N.S. Wales ..	49,933,535	63,298,422	1,926,643	115,158,600	57,764,159	57,394,441
Victoria ..	42,317,863	52,199,145	1,600,992	96,118,000	47,147,011	48,970,989
Queensland ..	17,909,571	20,972,565	588,416	39,470,552	20,882,610	18,587,942
South Australia	15,496,514	14,671,002	596,432	30,763,948	14,446,595	16,317,353
West. Australia	7,258,384	9,010,142	241,152	16,509,678	8,846,238	7,663,440
Tasmania ..	3,930,181	4,089,893	139,883	8,159,957	4,000,455	4,159,502
Nor. Territory ..	57,106	43,875	1,743	102,724	48,934	53,790
Total ..	136,903,154	164,285,044	5,095,261	306,283,459	153,136,002	153,147,457

5. Commonwealth Savings Bank.—The Savings Bank department of the Commonwealth Bank started operations in Victoria on 15th July, 1912, in Queensland on 16th September, 1912, in the Northern Territory on 21st October, 1912, and in the States of New South Wales, South Australia, and Western Australia on 13th January, 1913. Extensive use is being made of the country post-offices as local agencies, the several States having received notice to remove their Savings Banks from the post-offices by the end of 1912.

The Commonwealth Bank absorbed the Tasmanian State Savings Bank in January, 1913, on terms set out in Official Year Book No. 6. Arrangements for the transfer of the Queensland Savings Bank were completed early in 1920, and it was effected at the end of the year.

For further particulars concerning the Commonwealth Savings Bank, see Official Year Books Nos. 6–10.

The following table shews for each State the number of depositors, and the amount at credit on 30th June, 1921, in the Commonwealth Savings Bank :—

COMMONWEALTH SAVINGS BANK AS AT 30th JUNE, 1921.

Locality.	Number of Depositors.	Amount at Credit.
		£
New South Wales	208,152	6,592,304
Victoria	127,389	5,305,597
Queensland	327,065	18,587,942
South Australia	43,988	1,993,349
Western Australia	53,183	1,818,192
Tasmania	56,463	1,536,861
Northern Territory	935	53,790
Papua	1,290	62,931
London	6,291	239,424
Total	824,756	36,190,390

§ 4. Companies.

1. General.—Returns in regard to registered companies are defective, and, with few exceptions, are not available for Tasmania. They embrace (a) Returns relating to Trustees, Executors and Agency Companies; (b) Returns relating to Registered Building and Investment Societies; and (c) Returns relating to Registered Co-operative Societies.

2. Trustees, Executors and Agency Companies.—Returns are available of eight Victorian, two New South Wales, one Queensland, four South Australian, one Western Australian, two Tasmanian companies, and two with head offices in New Zealand. The paid-up capital of these twenty-one companies amounted to £809,536; reserve funds and undivided profits to £544,196; other liabilities, £248,219; total liabilities, £1,601,951. Among the assets are included :—Deposits with Governments, £197,504; other investments in public securities, fixed deposits, etc., £458,722; loans on mortgage, £139,223; property owned, £499,222; other assets, £307,280. The net profits for the year were £133,936. Returns as to the amount at credit of estates represented by assets are available for only eleven companies.

3. Registered Building and Investment Societies.—Returns have been received of a total of 220 societies, viz., 141 in New South Wales, 30 in Victoria, 12 in Queensland, 20 in South Australia, 13 in Western Australia, and 4 in Tasmania. The balance-sheets

cover various periods ended during the second half of 1920 and the first half of 1921, so that the returns may be assumed to correspond roughly to the financial year 1920-21. The liabilities of the societies are stated as follows :—

LIABILITIES OF REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1920-21.

State.	Paid-up Capital or Subscriptions.	Reserve Funds.	Deposits.	Bank Overdrafts and other Liabilities.	Total. Liabilities.
	£	£	£	£	£
New South Wales ..	1,890,057	410,495	496,298	115,913	2,912,763
Victoria ..	1,272,203	399,734	900,656	120,946	2,693,539
Queensland ..	539,113	46,391	105,709	27,406	718,619
South Australia ..	301,101	30,280	5,517	24,092	360,990
Western Australia ..	170,066	..	27,296	12,627	209,989
Tasmania ..	116,978	63,975	180,070	7,714	368,737
Total ..	4,280,518	950,875	1,715,546	308,698	7,264,637

The assets of the companies for the same period were as follows :—

ASSETS OF REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1920-21.

State.	Advances on Mortgage.	Landed and House Pro- perty, Furni- ture, etc.	Cash in Hand and on Deposit and other Assets.	Total Assets.
	£	£	£	£
New South Wales ..	2,541,808	(a)	370,955	2,912,763
Victoria ..	2,452,168	203,899	152,594	2,808,661
Queensland ..	658,976	13,451	48,511	720,938
South Australia ..	322,475	16,433	22,082	360,990
Western Australia ..	202,636	147	7,206	209,989
Tasmania ..	326,831	10,390	31,516	368,737
Total ..	6,504,894	244,320	632,864	7,382,078

(a) Included with other assets.

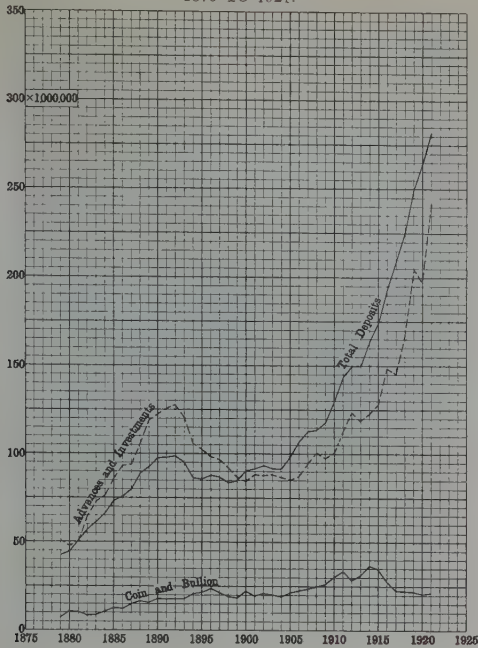
Statistical information, so far as is available, is furnished in the following table :—

REGISTERED BUILDING AND INVESTMENT SOCIETIES, 1920-21.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	All States.
Number of societies ..	141	30	12	20	13	4	220
Number of shareholders ..	(a)	7,551	4,704	9,869	4,612	1,849	28,585 <i>b</i>
Number of shares ..	(a)	(a)	920,633	29,039	15,653	15,642	980,967 <i>c</i>
Number of borrowers ..	(a)	9,537	4,293	2,234	1,497	1,301	18,862 <i>b</i>
Income for year from interest ..	£ 154,128	205,329	48,395	17,131	(a)	24,414	449,397
Working expenses for year ..	£ 131,130	74,588	8,742	8,219	6,852	8,085	237,616
Amount of deposits during year ..	£ 248,321	961,029	99,870	7,220	72,816	45,451	1,434,707
Repayment of loans during year ..	£ 362,418	985,779	215,748	81,283	69,693	93,248	1,808,169
Loans granted during year ..	£ 434,741	963,211	208,933	100,570	83,304	117,598	1,908,357

(a) Not available. (b) Exclusive of New South Wales. (c) Exclusive of New South Wales and Victoria. (d) Included in repayment of loans.

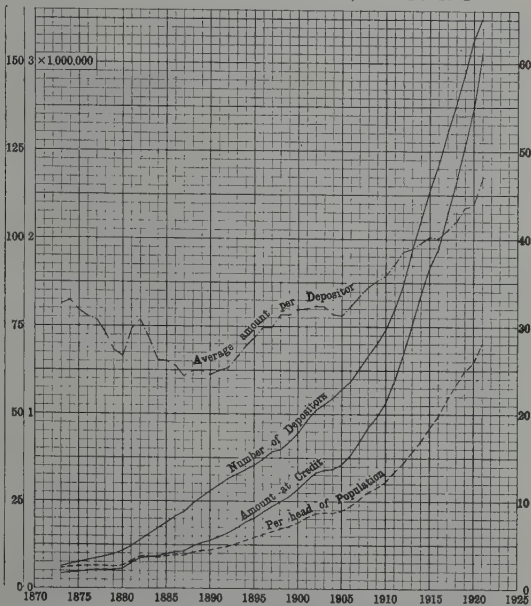
AUSTRALIAN BANKING STATISTICS.—CHEQUE-PAYING BANKS IN AUSTRALIA,
1870 TO 1921.



(See pp. 699 to 701.)

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year and its vertical height a sum of £5,000,000.

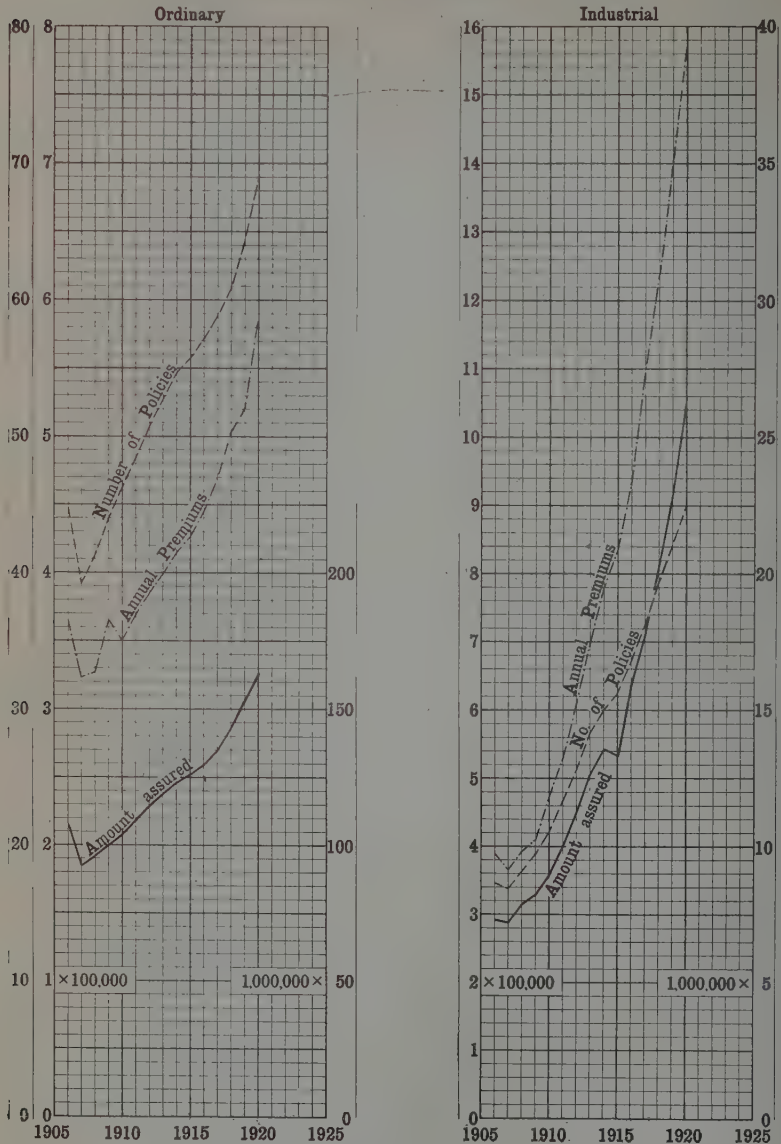
SAVINGS BANKS IN AUSTRALIA, 1873 TO 1921.



(See pp. 702 to 705.)

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of one year. Of the two scales on the left, the outer one represents the amount at credit, and the inner one the number of depositors, while the vertical height of each small square represents £2,500,000 and 50,000 in number respectively. The scale on the right represents the average amount per depositor, and per head of population respectively, while the vertical height of each small square represents £1.

GRAPHS SHEWING LIFE ASSURANCE IN ORDINARY AND INDUSTRIAL DEPARTMENTS
IN THE COMMONWEALTH OF AUSTRALIA, 1906 TO 1920.



(See p. 711.)

EXPLANATION OF GRAPHS.—The base of each small square represents in each graph an interval of one year.

In the case of the "Ordinary" Assurance graph, there are three scales—two on the left—the outer one representing the Annual Premiums, and the inner one the number of Policies in force,—and one on the right representing the Amount Assured, exclusive of bonus additions. The vertical height of each small square represents £100,000, 10,000 in number and £5,000,000 respectively.

In the case of the "Industrial" Assurance graph, the scale on the left represents the Annual Premiums and the number of Policies in force, and the scale on the right the Amount Assured, exclusive of bonus additions. The vertical height of each small square represents £20,000, 20,000 in number and £500,000 respectively.

4. **Registered Co-operative Societies.**—Returns are available of 188 societies, of which 67 are in New South Wales, 75 in Victoria, 4 in Queensland, 20 in South Australia, and 22 in Western Australia. As in the case of Building and Investment Societies, the balance-sheets of Co-operative Societies cover various periods ended during the financial year 1920-21. The liabilities of the 188 societies are shewn in the following table:—

LIABILITIES OF REGISTERED CO-OPERATIVE SOCIETIES, 1920-21.

State.	Paid-up Capital.	Reserve Funds.	Bank Overdrafts and Sundry Creditors.	Other Liabilities, Profit and Loss Account, etc.	Total Liabilities.
	£	£	£	£	£
New South Wales ..	429,230	262,831	(a)	262,258	954,319
Victoria ..	216,689	75,139	406,462	93,149	791,439
Queensland ..	532	1,415	3,859	24,140	29,946
South Australia ..	458,959	91,396	160,285	82,917	793,557
Western Australia ..	31,537	4,670	33,165	9,337	78,709
Total ..	1,136,947	435,451	603,771	471,801	2,647,970

(a) Included in other liabilities.

The assets of the societies are shewn hereunder:—

ASSETS OF REGISTERED CO-OPERATIVE SOCIETIES, 1920-21.

State.	Stock and Fittings.	Cash in Hand and Sundry Debtors.	Freehold and other Property and other Assets.	Total Assets.
	£	£	£	£
New South Wales ..	709,118	194,471	50,730	954,319
Victoria ..	353,998	271,185	233,725	858,908
Queensland ..	8,166	4,710	25,766	38,642
South Australia ..	352,248	158,230	283,079	793,557
Western Australia ..	48,246	24,120	6,343	78,709
Total ..	1,471,776	652,716	599,643	2,724,135

The following table gives statistical information, so far as is available:—

REGISTERED CO-OPERATIVE SOCIETIES, 1920.

Details.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	All States. (a)
Number of Societies on 31st December, 1920 ..	67	75	4	20	22	188
Total No. of members on 31st December, 1920 ..	48,313	18,592	19,665	23,818	6,545	116,933
Total income for year 1920 ..	£ 3,291,192	1,806,903	27,188	1,157,612	316,965	6,599,860
Working expenses for year ended 31st December, 1920 ..	£ 3,111,792	251,194	23,718	199,140	323,134	3,908,978

(a) Exclusive of Tasmania.

§ 5. Life Assurance.

1. **General.**—Under section 51 of the Commonwealth Constitution Act, the Commonwealth Parliament is empowered to legislate in regard to “insurance, other than State insurance; also State insurance extending beyond the limits of the State concerned.” With the exception of Act No. 12 of 1905, “an Act relating to assurance on the lives of children by life assurance companies or societies,” no legislation relating to life assurance has been passed by the Commonwealth Parliament, and life assurance companies carry on their business under State laws where such laws are in existence, or otherwise under the provisions of various companies’ or special Acts.

Returns for the year 1920 have been directly collected from life assurance societies by the Commonwealth Statistician, with results which are in the main satisfactory. Figures for 1920 refer to business in the Commonwealth only, and do not include New Zealand business.

2. **Companies Transacting Business in the Commonwealth.**—The total number of companies at present established in the Commonwealth is twenty, of which the following eight have their head offices in New South Wales :—The Australian Mutual Provident Society, the Mutual Life and Citizens’ Assurance Company Limited, the City Mutual Life Assurance Society Limited, the Australian Metropolitan Life Assurance Company Limited, the People’s Prudential Assurance Company Limited, the Assurance and Thrift Association Limited, the Co-operative Assurance Company Limited, and the Australian Provincial Assurance Association Limited. The Mutual Life and Citizens’ Assurance Company Limited was formed in 1908 by the amalgamation of the Mutual Life Association of Australasia and the Citizens’ Life Assurance Company Limited. During 1910 it increased in size by amalgamating with the Australian Widows Fund Life Assurance Society Limited. Six companies have their head offices in Victoria, viz. :—The Australian Alliance Assurance Company, the National Mutual Life Association of Australasia Limited, the Victoria Life and General Insurance Company, the Colonial Mutual Life Assurance Society Limited, the Australasian Temperance and General Mutual Life Assurance Society Limited, and the Life Insurance Company. The head office of the Queensland State Insurance Office is in Brisbane. The head office of the Provident Life Assurance Company is in New Zealand, and that of the Liverpool and London and Globe Insurance Company in England. The remaining three societies belong to the United States, viz. :—The Equitable Life Assurance Society of the United States, the Mutual Life Insurance Society of New York, and the New York Life Insurance Society.

Many of the Australian companies are purely mutual; the following, however, are partly proprietary, the figures in brackets representing the shareholders’ capital paid up :—The Victoria Life and General (£40,000), Mutual Life and Citizens’ (£200,000), Metropolitan (£11,839), Prudential (£10,000), Life Insurance Company (£71,500), Assurance and Thrift (£17,684), Co-operative Assurance (£70,727), and Australian Provincial Association (£223,352). Of foreign companies transacting business in the Commonwealth, the Liverpool and London and Globe, the Provident, and the Equitable are partly proprietary, the shareholders’ capital amounting to £531,050, £21,000, and £20,550 respectively.

3. **Ordinary and Industrial Business.**—Of the societies enumerated in the preceding paragraph, the following seven in 1920 transacted both ordinary and industrial business :—The Australian Mutual Provident Society, the Mutual Life and Citizens’ Assurance Company Limited, the Australasian Temperance and General Mutual Life Assurance Society Limited, the Australian Metropolitan Life Assurance Company Limited, the Colonial Mutual Life Assurance Society, the Life Insurance Company, and the Co-operative Assurance Company.

The People’s Prudential Assurance Company Limited and the Provident Life Assurance Company formerly restricted their operations to industrial business, but have now established an ordinary department.

The remaining societies transacted ordinary life assurance business only, with the exception of those companies which have fire and accident branches, etc.

It has been attempted in this section to keep returns relating to ordinary and to industrial business apart, so far as it is possible to do so, and figures relating to companies whose head offices are in New Zealand or in Europe or America refer to the Australian business only of those companies.

4. Australian Business in Force, 1920.—(i) *Ordinary Business.* The subjoined table shews the ordinary life business in force at the latest dates available for the nineteen societies conducting operations in the Commonwealth :—

ORDINARY LIFE ASSURANCE.—AUSTRALIAN BUSINESS IN FORCE, 1920.

Society.	Policies in force, exclusive of Annuities.	Amount Assured, exclusive of Bonus Addition, etc.	Annual Premium Income, exclusive of Annuities.
	No.	£	£
Australian Mutual Provident Society	292,824	85,241,302	2,707,789
Mutual Life and Citizens' Assurance Company Limited ..	102,365	19,929,322	698,243
City Mutual Life Assurance Society	36,341	7,796,002	299,874
Australian Metropolitan Life Assurance Company	5,982	722,153	30,574
Australian Alliance Assurance Company	194	65,127	1,431
National Mutual Life Association of Australia	90,607	23,348,183	865,156
Victoria Life and General Insurance Company	37	25,866	394
Colonial Mutual Life Assurance Society	33,929	7,206,376	280,627
People's Prudential Assurance Company	5,670	478,286	(a) 35,107
Australasian Temperance and General Mutual Life Assurance Society	60,488	8,220,372	313,988
Liverpool and London and Globe Insurance Company (Life Branch)	204	72,641	2,089
Provident Life Assurance Company	1,181	124,890	5,138
Life Insurance Company	9,963	2,451,915	127,281
Assurance and Thrift Association Limited	1,734	328,308	13,114
Co-operative Assurance Company	1,776	473,320	20,032
Australian Provincial Assurance Association Limited	25,905	5,503,114	258,808
The Queensland State Insurance Office	13,072	2,235,438	75,327
Equitable Life Assurance Society of United States	3,146	1,012,568	35,846
Mutual Life Insurance Society of New York	2,590	971,729	22,108
New York Life Assurance Society	4,142	2,051,360	78,977

(a) Including Industrial.

(ii) *Industrial Business.* Similar information in regard to the industrial business of the nine societies transacting this kind of business is given in the following table :—

INDUSTRIAL ASSURANCE.—AUSTRALIAN BUSINESS IN FORCE, 1920.

Society.	Policies in Force.	Amount Assured.	Annual Premium Income.
	No.	£	£
Australian Mutual Provident Society	212,089	9,084,035	479,171
Mutual Life and Citizens' Assurance Company	261,013	5,403,343	301,240
Australian Metropolitan Life Assurance Company	41,043	1,293,480	65,655
Colonial Mutual Life Assurance Society	86,222	2,544,644	161,806
People's Prudential Assurance Company	5,525	141,735	(a)
Aust. Temperance and General Mutual Life Ass. Society	271,661	7,012,111	536,798
Provident Life Assurance Company	17,735	500,746	25,840
Life Insurance Company	3,965	100,369	6,440
Co-operative Assurance Company	5,093	142,872	9,363

(a) Included in ordinary.

5. Receipts and Expenditure of Assurance Societies, 1920.—(i) *Ordinary Business.* The following returns refer to the Australian business of all societies doing business in the Commonwealth. The People's Prudential Assurance Company, whose accounts do not distinguish between revenue and expenditure on account of ordinary and industrial business, has been included among the companies doing industrial business.

ORDINARY LIFE ASSURANCE.—AUSTRALIAN RECEIPTS AND EXPENDITURE, 1920.

Society.	Receipts.	Expenditure.	Excess Receipts (Addition to Funds).
	£	£	£
Australian Mutual Provident Society	4,494,770	2,640,286	1,854,484
Mutual Life and Citizens' Assurance Company ..	1,034,855	718,336	316,519
City Mutual Life Assurance Society	465,196	230,404	234,792
Australian Metropolitan Life Assurance Company ..	37,259	16,112	21,147
Australian Alliance Assurance Company	4,922	9,787	(a) 4,865
National Mutual Life Association of Australasia ..	1,403,189	664,836	738,353
Victoria Life and General Insurance Company ..	3,705	4,672	(a) 967
Colonial Mutual Life Assurance Society	412,129	229,603	182,526
Aust. Temperance and General Mutual Life Ass. Soc.	405,359	190,912	214,447
Liverpool and London and Globe (Life Branch) ..	2,089	3,702	(a) 1,613
Provident Life Assurance Company	6,161	1,449	4,712
Life Insurance Company	134,876	78,329	56,547
Assurance and Thrift Association Limited	17,440	9,534	7,906
Co-operative Assurance Company	21,608	14,053	7,555
Australian Provincial Assurance	305,235	147,652	157,583
Queensland State Office	94,897	54,582	40,315
Equitable Life Assurance Society	76,771	123,689	(a) 46,918
Mutual Life Insurance Society of New York ..	29,302	76,481	(a) 47,179
New York Life Insurance Society	87,551	115,639	(a) 28,088

(a) Decrease.

(ii) *Industrial Business.* A similar return for those societies which transact industrial business is given below. The figures for the Prudential, as stated above, are included therein.

INDUSTRIAL LIFE ASSURANCE.—AUSTRALIAN RECEIPTS AND EXPENDITURE, 1920.

Society.	Receipts.	Expenditure.	Excess Receipts (Addition to Funds).
	£	£	£
Australian Mutual Provident Society	601,547	237,415	364,132
Mutual Life and Citizens' Assurance Company ..	381,997	272,498	109,499
Australian Metropolitan Life Assurance Company ..	70,465	48,649	21,816
Colonial Mutual Life Assurance Society	178,413	106,756	71,657
People's Prudential Assurance Company	39,432	28,214	11,218
Aust. Temperance and General Mutual Life Ass. Soc.	612,875	334,630	278,245
Provident Life Assurance Company	27,959	16,672	11,287
Life Insurance Company	6,829	5,090	1,739
Co-operative Assurance Company	10,200	10,698	(a) 498

(a) Decrease.

6. **Liabilities and Assets of Assurance Societies, 1920.**—The liabilities of the Australian societies consist mainly of their assurance funds; as already mentioned, however, nine of the societies are partly proprietary, viz., the Mutual Life and Citizens', the Metropolitan, the Prudential, the Victoria Life and General, the Provident, the Life Insurance Company, the Assurance and Thrift, Co-operative Assurance Company, and the Australian Provincial. The capital of the Provident is held in New Zealand, that of the Liverpool and London and Globe in England, and that of the Equitable Life in the United States. The assets consist mainly of loans on mortgage and policies, Government, municipal, and similar securities, shares, freehold property, etc. As in some cases the Australian liabilities exceed the Australian assets, it may be pointed out that this table should be read in connexion with the table on page 714 which sets out the total assets. Loans on personal security are granted by very few of the Australian societies.

(i) *Ordinary Business.* The following table shows the liabilities and assets of the societies transacting ordinary life business:—

ORDINARY LIFE ASSURANCE.—AUSTRALIAN LIABILITIES AND ASSETS, 1920.

Society.	Liabilities.			Assets.(c)		
	Total Funds Including Paid-up Capital.	Other Liabilities.	Total.	Loans on Mortgages and Policies.	Securities, Freehold Property, etc.	Total.
	£	£	£	£	£	£
Australian Mutual Provident Society (a)	37,071,203	536,150	37,607,362	12,781,025	21,801,028	34,582,053
Mutual Life and Citizens' Assurance Co.	(b)	(b)	(b)	1,917,178	5,954,588	7,871,766
City Mutual Life Assurance Society ..	1,580,015	168,240	1,748,255	917,096	831,159	1,748,255
Australian Metropolitan Life Assurance Company ..	136,842	2,696	139,538	15,007	126,290	141,297
Australian Alliance Assurance Company ..	74,552	3,596	78,148	19,902	58,246	78,148
National Mut. Life Assoc. of Australasia ..	(b)	(b)	(b)	5,100,428	6,259,943	11,369,371
Victoria Life and General Insurance Co.	74,719	6,157	80,876	6,758	74,118	80,876
Colonial Mutual Life Assurance Society ..	2,842,661	426,087	3,268,748	719,627	2,549,121	3,268,748
Australasian Temperance and General Mutual Life Assurance Society (a)	3,448,533	165,077	3,613,610	733,422	2,880,188	3,613,610
Liverpool and London and Globe (Life Branch) ..	(b)	(b)	(b)	(b)	(b)	(b)
Provident Life Assurance Company ..	16,399	148	16,547	297	20,669	20,966
Life Insurance Co. ..	207,500	62,580	270,080	33,024	237,056	270,080
Assurance and Thrift Association Ltd. ..	67,311	10,599	77,910	43,335	33,878	77,016
Co-operative Assurance Company (a) ..	102,750	20,911	123,661	13,088	110,573	123,661
Australian Provincial Assur. Assocn. Ltd. ..	555,187	438,692	993,879	21,632	972,763	994,395
Queensland State Office ..	74,850	2,630	77,480	27,727	49,753	77,480
Equitable Life Assurance Society ..	(b)	(b)	(b)	137,499	409,366	546,865
Mutual Life Insurance Society of New York ..	(b)	(b)	(b)	104,422	60,611	165,033
New York Life Insurance Society ..	728,000	5,690	733,690	106,045	26,344	132,389

(a) Including industrial business. As the business of these three societies is mainly ordinary life business they have been included in this table. (b) Not available. (c) Several life offices have a considerable portion of their assets invested outside the Commonwealth (see table on the next page).

(ii) *Industrial Business.* As stated in the footnote to the preceding table, the Australian Mutual Provident Society, the Australasian Temperance and General Mutual Life Assurance Society, and the Co-operative Assurance Company, which transact a certain amount of industrial business, but whose business is mainly ordinary life business, have been included with those societies doing only ordinary life business. On the other hand, the People's Prudential Assurance Company, in whose case industrial business greatly predominates over ordinary life business, has been included in the following table. Incomplete as the table is, it shows that the funds appropriated to industrial business are very insignificant in comparison with those pertaining to ordinary life business. Taking the table in conjunction with the statements of revenue and expenditure, the question may well be asked whether in the case of some of the societies, industrial business is worth catering for.

INDUSTRIAL LIFE ASSURANCE.—AUSTRALIAN LIABILITIES AND ASSETS, 1920.

Society.	Liabilities.			Assets.		
	Total Funds, Including Paid-up Capital.	Other Liabilities.	Total.	Loans on Mortgages and Policies.	Securities, Freehold Property, etc.	Total.
	£ (b)	£ (b)	£ (b)	£ (b)	£ (b)	£ (b)
Mutual Life and Citizens' Assurance Co.				5,258	5,942,737	5,947,995
Australian Metropolitan Life Assurance Company	118,055	1,612	118,567	2,549	114,260	116,809
Colonial Mutual Life Assurance Society	402,402	826	403,228	7,274	395,954	403,228
People's Prudential Assurance Co.(a)	98,950	1,57	100,528	60,822	39,706	100,528
Provident Life Assurance Company	37,610	..	37,610	690	36,890	37,580

(a) Including ordinary business.

(b) Particulars not available.

(iii) *Total Assets.* It has been thought advisable to confine the figures relating to life assurance to business in the Commonwealth. Several of the companies whose head offices are in Australia transact, however, a large amount of business elsewhere, viz., in New Zealand, in South Africa, and in the United Kingdom, while in the case of the foreign companies, the Australian business is insignificant compared with that done elsewhere. Particulars as to this foreign business of both Australian and foreign companies will be found in "Finance Bulletin No. 12" (published by this Bureau), and a short table only is inserted here, shewing the total assets of the various companies, so that the deficiencies in the Australian assets shewn in the previous tables for those companies doing business elsewhere may not be misunderstood:—

TOTAL ASSETS OF ASSURANCE COMPANIES, 1920.

Society.	Assets.	Society.	Assets.
	£		£
ORDINARY BUSINESS.		ORDINARY BUSINESS—continued.	
Australian Mutual Provident Soc.(a)	44,706,404	Co-operative Assurance Co.(a)	123,661
Mutual Life and Citizens' Assur. Co.	10,450,204	Aust. Provincial Assurance Assn.	1,077,454
City Mutual Life Assurance Society	1,748,255	Queensland State Office	77,480
Aust. Metropolitan Life Assur. Co.	141,297	Equitable Life Assurance Society	129,005,747
Australian Alliance Assurance Co.	78,148	Mutual Life Ins. Society of New York	137,782,378
National Mutual Life Association	15,016,604	New York Life Insurance Society	198,734,968
Victoria Life and General Insur. Co.	80,876		
Colonial Mutual Life Assurance Soc.	5,747,199	INDUSTRIAL BUSINESS.	
Australasian Temperance and General Mutual Life Assurance Soc.(a)	4,125,109	Mutual Life and Citizens' Assur. Co.	5,970,822
Liverpool & London & Globe (Life)	20,455,383	Australian Metropolitan Life Assurance Company	116,809
Provident Life Assurance Company	106,500	Colonial Mutual Life Assurance Soc.	494,187
Commonwealth Life Insurance Co.	270,080	People's Prudential Assur. Co.(b)	100,528
Assurance and Thrift Assn. Ltd.	78,214	Provident Life Assurance Company	181,825

(a) Including industrial business.

(b) Including ordinary business.

§ 6. Fire Insurance.*

Australian Fire Insurance Business.—Returns are available shewing the revenue and expenditure, assets and liabilities, and investments of twenty-eight insurance companies having their head offices either in the Commonwealth or in New Zealand. These companies are:—(a) with head office in Sydney—the Australian Mutual Fire Insurance Company, the City Mutual Fire Insurance Company, the Mercantile Mutual Fire Insurance Company, the Queensland Insurance Company Limited, the United Insurance Company, the Insurance Office of Australia Limited, the Federal Mutual Insurance Company of Australia, The Manufacturers' Mutual and the Farmers and Settlers; (b) with head office in Melbourne—The Australian Alliance Assurance Company, the Colonial Mutual Fire Insurance Company, the Victoria Insurance Company, the Victoria General Insurance and Guarantee Company Limited, the Co-operative Insurance Company of Australia, the Chamber of Manufactures, and the Victoria State Accident

* See also Section XXVI., § 5, Fire Brigades.

Office; (c) with head office in Hobart—the Derwent and Tamar Fire and Marine Assurance Company Limited; (d) with head office in Launceston—the Mutual Fire Insurance Company of Tasmania; (e) with head office in Auckland—the New Zealand Insurance Company, and the South British Fire and Marine Insurance Company of New Zealand; (f) with head office in Dunedin—the National Fire and Marine Insurance Company of New Zealand, and the Standard Fire and Marine Insurance Company of New Zealand; (g) with head office in Wellington—the New Zealand State Fire Insurance Office, and the New Zealand Government Accident; (h) with head office in Christchurch—the Farmers' Co-operative Insurance Association of New Zealand; (i) with head office in Perth—the Western Australian Insurance Company; (j) with head office in Brisbane—the Queensland State Government, and (k) with head office in Fiji—the Pacific Company. As their names imply, many of these companies transact marine insurance, and in some cases guarantee and other business, in addition to the fire insurance business, and the returns relating to the latter cannot be separated from the former.

The accounts given hereunder cover two consecutive years, the second year ending at various dates from 31st December, 1919, to 30th April, 1921. The figures for the first year are in brackets.

The premiums, less reinsurances and returns, amounted to £5,047,311 (£4,975,879); losses were £2,619,333 (£2,614,430). Expenses and commission came to £1,668,610 (£1,588,322), and there was, therefore, a profit on trade operations of £759,368 (£773,127). As, however, interest, rent, fees, etc., amounted to £372,575 (£380,622), the total profit was £1,131,943 (£1,153,749). Dividends and bonuses came to £378,943 (£398,699). The ratio to premium income of losses was, therefore, 51.90 per cent. (52.54 per cent.), and of expenses and commissions, 33.06 per cent. (31.92 per cent.). The resulting ratio of trade surplus to premium income was 15.04 per cent. (15.54 per cent.).

The paid-up capital of the twenty-seven companies was £3,656,289 (£3,365,235); reserve and reinsurance funds, £5,111,298 (£4,635,401); undivided profits, £501,976 (£394,795). The total paid-up capital and reserves were, therefore, £9,269,563 (£8,395,431). In addition to these liabilities there were others, viz.:—Unsettled losses, £886,271 (£790,992); sundry creditors, £1,380,468 (£1,138,306); dividends payable, £310,333 (£279,618); and, in the case of two companies, life assurance funds £175,199 (£136,732); thus bringing the total liabilities to shareholders and to the general public up to £12,021,834 (£10,741,079).

The corresponding amount of assets is made up of investments, £9,941,709 (£8,816,574), viz.:—Loans on mortgage, £1,015,066 (£1,137,746); Government securities, debentures, shares, etc., £5,662,417 (£4,969,458); landed and other property, including furniture, £1,583,272 (£1,332,642); fixed deposits, £1,608,028 (£1,193,627); in the case of one company doing a mixed business—loans on its own life policies, etc., £3,828 (£4,297); other investments, £69,098 (£183,804). The balance of assets consisted of cash in bank, on hand, and bills receivable, £571,136 (£832,630); and sundry debtors, etc., £1,508,989 (£1,091,875).

The financial position of the companies is undoubtedly a strong one, owing to the steady accumulation of reserves, and the high ratio borne by capital and reserves to premium income must be a cause of satisfaction to policy holders.

§ 7. Marine Insurance.

No returns are available in regard to Marine Insurance. It may, however, be stated that the Commonwealth Parliament in 1909 passed an Act (No. 11 of 1909, "An Act relating to Marine Insurance") which was assented to on the 11th November, 1909. This Act materially alters some of the conditions under which marine policies have heretofore been issued.

§ 8. Friendly Societies.

1. **General.**—Friendly societies are an important factor in the social life of the community, as probably one-third of the total population of the Commonwealth comes either directly or indirectly under their influence. Their total membership is about 490,000, but as certain benefits, such as medical attendance and free medicines, and in many cases funeral expenses, are granted to members' families as well as to members themselves, this figure must, even when due allowance is made for young and

unmarried members, be multiplied by at least four to arrive at the total number of persons more or less connected with these societies. Legislation has conferred certain privileges on friendly societies, but, on the other hand, it insists on their registration, and it is the duty of the Registrars in the various States, prior to registering a new society, to see that its rules are conformable to the law, and that the scale of contribution is sufficiently high to enable the promised benefits to be conferred on members. Societies are obliged to forward annual returns as to their membership and their finances to the Registrar, and elaborate reports are published in most of the States dealing with the returns thus received.

In the following tables the figures refer to the year 1920.

2. **Number of Societies, Lodges, and Members.**—The total number of societies registered in New South Wales is 36; in Victoria, 55; in Queensland, 18; in South Australia, 17; in Western Australia, 15; and in Tasmania, 19. No total is given of these figures for the Commonwealth, as the societies shewn in one State are in most cases represented in all the other States. The number of different lodges, the total number of benefit members at the end of the year, and their average number during the year are shewn in the following table:—

FRIENDLY SOCIETIES.—LODGES AND MEMBERS, 31st DECEMBER, 1920.

State.	Number of Lodges.	Benefit Members at End of Year.	Average No. of Benefit Members during Year.
New South Wales	2,015	183,344	176,413
Victoria	1,475	143,021	143,651
Queensland	570	55,776	55,119
South Australia	598	69,948	69,245
Western Australia	279	18,675	18,532
Tasmania	192	23,214	22,810
Commonwealth	5,129	493,978	485,770

3. **Sickness and Death.**—Sick pay is generally granted for a number of months at full rates, then for a period at half rates, and in some societies is finally reduced to quarter rates. The following table shews the total number of members who received sick pay during the year, the number of weeks for which they received pay in the aggregate, and the average per member sick, and further the number of benefit members who died during the year, together with the proportion of deaths per thousand average members:—

FRIENDLY SOCIETIES.—SICKNESS AND DEATH, 1920.

State.	Number of Members who received Sick Pay.	Total Number of Weeks Sick Pay Granted.	Average Number of Weeks per Member Sick.	Deaths of Benefit Members and Wives.	Proportion of Deaths to 1,000 average Benefit Members.
New South Wales	(a)	(a)	(a)	(a)	(a)
Victoria	29,063	294,818	10.14	1,852	12.89
Queensland	9,297	69,369	7.46	406	7.37
South Australia	11,816	119,133	10.08	1,006	14.53
Western Australia	3,399	27,227	8.01	127	6.85
Tasmania	4,473	34,526	7.72	300	13.15
Commonwealth (b)	58,048	545,073	9.39	3,691	12.25

(a) Not available.

(b) Exclusive of New South Wales.

4. **Revenue and Expenditure.**—The financial returns are not prepared in the same way in each State, but an attempt has been made in the subjoined table to group the revenue under the main headings:—

FRIENDLY SOCIETIES.—REVENUE, 1920.

State.	Entrance Fees, Members' Contributions, and Levies.	Interest, Dividends, and Rents.	All other Income.	Total Revenue.
	£	£	£	£
New South Wales	887,279	191,613	76,985	1,155,877
Victoria	458,412	146,124	76,696	681,232
Queensland	194,771	48,751	..	243,522
South Australia	178,303	71,703	51,216	301,222
Western Australia	57,720	17,427	29,831	104,978
Tasmania	71,098	13,661	7,796	92,555
Commonwealth	1,847,683	489,279	242,524	2,579,386

The returns relating to expenditure are more complete than those relating to revenue, and can be shewn in full for every State. The figures shew that the excess of revenue was £475,871 for the entire Commonwealth. The revenue exceeded the expenditure by nearly one pound per average benefit member.

FRIENDLY SOCIETIES.—EXPENDITURE, 1920.

State.	Sick Pay.	Medical Attendance and Medicine.	Sums Paid at Death of 'Members and Members' Wives.	Adminis- tration.	All other Expendi- ture.	Total Expendi- ture.
	£	£	£	£	£	£
New South Wales	297,051	317,221	80,201	199,399	68,039	961,911
Victoria	197,635	186,338	32,759	86,541	60,947	564,220
Queensland	49,693	73,288	19,674	41,069	..	183,724
South Australia	70,614	38,675	31,419	36,952	41,383	219,043
Western Australia	20,410	20,359	3,463	16,207	31,350	91,789
Tasmania	24,049	21,609	15,648	13,749	7,773	82,828
Commonwealth	659,452	657,490	183,164	393,917	209,492	2,103,515

It appears from the above figures that sick pay averaged about twenty-four shillings per week, but, as the returns include pay at half and quarter rates, and as the proportion of these to full rates is not stated, the average given must be taken for what it is worth. Medical attendance and medicine came to about twenty-seven shillings per average benefit member.

5. **Funds.**—The two foregoing tables shew that the surplus of revenue over expenditure in five States amounted to £475,871 for the year, and a small surplus must, of course, result annually in every society which levies adequate contributions to enable it to meet

all possible claims. These accumulations of profits are generally invested, and the subjoined table shews for all of the six States the division into invested and uninvested funds :—

FRIENDLY SOCIETIES.—FUNDS, 31st DECEMBER, 1920.

State.	Invested Funds.	Uninvested Funds.	Total Funds.
	£	£	£
New South Wales	2,411,762	(a)	2,411,762
Victoria	3,075,960	97,718	3,173,678
Queensland	1,028,609	3,005	1,031,614
South Australia	1,471,319	30,027	1,501,346
Western Australia	285,150	8,970	294,120
Tasmania	265,592	14,723	280,315
Commonwealth	8,538,392	154,443	8,692,835

(a) Included in Invested Funds.

The total funds amounted, therefore, to about £18 per member at the close of the year under review.

§ 9. Probates.

1. Number of Probates and Letters of Administration and Value of Estates.—The value of the estates left by deceased persons gives a fair view of the distribution of property among the general population. There occurred in 1920 the deaths of 33,923 adult persons, while the total number of probates and letters of administration granted during the same period was 15,910. It would therefore appear that nearly one half of the adults who died during the year were possessed of sufficient property to necessitate the taking out of probate. The details for each State are shewn in the table hereunder :—

PROBATES AND LETTERS OF ADMINISTRATION, 1920.

State.	Number of Estates.			Net Value of Estates.		
	Probates.	Letters of Administration.	Total.	Probates.	Letters of Administration.	Total.
				£	£	£
New South Wales	5,737	(a)	5,737	12,265,044	(a)	12,265,044
Victoria	3,904	1,933	5,837	14,672,239	(a)	14,672,239
Queensland	857	170	1,027	3,339,588	255,256	3,594,844
South Australia	1,409	435	1,844	3,636,988	194,926	3,831,914
Western Australia	618	330	948	1,291,696	146,496	1,438,192
Tasmania	433	84	517	1,004,279	91,257	1,095,536
Commonwealth	12,958	2,952	15,910	36,209,834	687,935	36,897,769

(a) Included with Probates.

The number of intestate estates placed under the control of the Curator during the year, and the amount of unclaimed money paid into Consolidated Revenue in each State during the year 1920 are shewn hereunder:—

INTESTATE ESTATES, 1920.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wth.
Intestate estates placed under control of Curator during 1920—							
Number	(a)	533	1,114	231	484	337	2,699b
Value £	(a)	57,477	433,980	43,414	34,648	111,493	681,012b
Unclaimed money paid into Consolidated Revenue by Curator during 1920 £	59,649	1,120	7,169	1,233	1,808	69,345	140,324

(a) Included above.

(b) Exclusive of New South Wales.

On pages 707 and 708 will be found a series of graphs illustrating the progress of Banking and Life Assurance. The graphs on Banking cover a period of about forty years, and include cheque-paying Banks and Savings Banks. The graphs dealing with Life Assurance go back to 1906 only, and include ordinary and industrial business.

§ 10. Decimal Coinage.*

1. **Introductory.**—The period of commercial reconstruction which followed on the Armistice of 1918, has been marked by a rigid investigation into many of the methods of commercial procedure. The re-establishment of export trade is so essential to the prosperity of the British Empire, and particularly of the United Kingdom, that a re-examination of the entire position became necessary. The events of the war came as a supreme test to many national institutions, confirming the solidity of some, and causing the abandonment of others, which proved unable to withstand the strain. The aftermath of the years of stress has induced a critical spirit, which demands that even old established institutions must no longer justify themselves by age alone, but by adaptability to modern conditions. If they have not sufficient flexibility for this purpose, then they must give way to others which have.

2. **Proposals for Coinage Reform.**—Under these circumstances, it was inevitable that the British systems of coinage, weights, and measures should once more attract the attention of reformers. It is nearly a century since the first motion to establish decimal coinage was brought forward in the House of Commons. The movement in favour of decimalisation has never lacked powerful adherents, but for ninety years it can hardly be said to have enlisted a great popular support. With the coming of the European war, many soldiers from Britain and Australasia, fighting on the Western Front, came into contact for the first time with a system of decimal coinage. Under these circumstances, a new Royal Commission—the latest of a long line—came into existence, and issued its Report in 1920. This Report, and the circumstances which led up to it, will be considered at a later stage.

3. **Coinage and Weights and Measures.**—It is impossible to discuss the subject of decimal coinage without some mention at least of the kindred subject of decimal weights and measures. In theory, the questions of decimal coinage and decimal weights and measures are apparently identical, but in practice the problems to be surmounted differ widely in their nature. Of all important trading countries, Britain stands alone in her non-adherence to decimal coinage. But the question there is complicated by the fact that more than one system of decimal coinage is open for adoption if the present system be abandoned. In weights and measures the present Imperial standards are strengthened by the powerful adhesion of the United States. As against this, however, is the fact that there is only one decimal system in the field—the metric system—which, if adopted by Great Britain and the United States, would at once become the international system

* Contributed by F. W. Barford, M.A., A.I.A., Commonwealth Bureau of Census and Statistics, Melbourne.

for commerce and industry, as it already is for science. In view, therefore, of the fundamental difference in the problems to be faced, this article will be limited to the subject of decimal coinage.

4. *Coinage Systems of the Empire.*—In 1522, a treatise on arithmetic was published by Cuthbert Tunstall, at that time Bishop of London, from which it appears that every European nation at that date had a duodecimal coinage. After the lapse of exactly four centuries it is found that every continental European country has abandoned duodecimal for decimal coinage, that new countries have unanimously adopted the decimal coinage system, and that, in short, decimal coinage is universal throughout the world, excepting in part of the British Empire. With regard to the British Empire, the following currency groups are in existence :—

- (a) *Duodecimal Group*: Includes United Kingdom, Union of South Africa, Australasia, West Indies, West African Colonies, Malta, Gibraltar, Falkland Islands, and Bermuda.
- (b) *Decimal Group*: Based upon American currency. Includes Canada, Newfoundland, and British Honduras.
- (c) *Decimal Group*: Based upon Indian currency. Includes India, Ceylon, Zanzibar, Somaliland, Mauritius, and the Seychelles.
- (d) *Decimal Group*: Based upon the Straits dollar. Includes Straits Settlements and Malay States.
- (e) *Decimal Group*: Based upon the pound sterling, florin, and decimal sub-divisions. Includes British East African Protectorate.

It will be seen, therefore, that decimal coinage has made considerable inroads into the British Empire, although, of course, group (a), the duodecimal group, is still by far the most important. The Parliament of the Union of South Africa is now (July, 1922) discussing a new Bill which proposes to reform the coinage by retaining the pound sterling and decimalising it, either through the medium of the florin and mil, or the shilling and cent. If this Bill should become law, the Union of South Africa will move out of group (a) into group (e).

A study of the foregoing shews that, with the exception of group (a) of the British Empire, there has been a distinct and unanimous movement in favour of decimal coinage. Countries starting their coinage *ab initio* have adopted it, and other countries having a duodecimal system have abandoned it in favour of a decimal system. Further, no country which has adopted a decimal system has shewn any desire to revert to any other. But no country, especially a country with a highly-developed commercial system, will lightly face the difficulties inherent in a variation of coinage unless a great change for the better is expected, and consequently it becomes a matter of great interest and importance to study those qualities in decimalism which have received such world-wide endorsement.

5. *Practical Advantages and Disadvantages.*—(i) *General.* The theoretical case for decimal coinage can be stated in a very few words. It may be remarked here that a point frequently urged in favour of the duodecimal system is the superior divisibility of twelve as opposed to ten. But this advantage is nullified by the fact that the duodecimals cannot be adapted, for the purposes of computation, to our system of numeration, which is based upon ten. So long as this continues—and the permanence of the decimal system of numeration is apparently assured—coinage must be divided on a similar basis to ensure the greatest possible facility in computation. This facility is provided by the decimal system in ample measure. Under it, the addition of money is performed in one operation: the duodecimal system demands two—addition and division. Under a decimal system monetary tables are simplified. Certain complicated arithmetical operations, such as “reduction of money” and “practice,” are rendered unnecessary. Lastly, statistical computations and conversions of foreign exchanges are lightened. The simplification of arithmetic would economise much of the time spent upon that subject in schools.

The question of coinage is, however, a practical one, and cannot be decided by theoretical considerations only. It was pointed out quite reasonably in the Report of 1920 (alluded to in 2 hereof) that in dealing with currency a most important consideration is the facility which the actual coins afford for the multitude of transactions in every day life in which coins change hands, and for which paper calculations are either not employed at all, or employed only by one party to the transaction. Of such transactions, the

purchase and sale of commodities by retail, and the rendering of such services as transportation, form a substantial proportion. These preliminary observations are necessary before proceeding to consider the present British system of coinage, and the efforts which have been made from time to time to reform it.

(ii) *Application to Present Monetary System.* The gold and silver currencies present no difficulty. The gold coins go down from the sovereign, and the silver coins from the florin, in simple binary subdivisions. This binary subdivision is also maintained in the bronze coinage, but the factor which links up the bronze with the silver coinage introduces the duodecimal element, and if the British system is to be decimalised, this factor must be eliminated. At present, the highest coin of account is 240 times the lowest. Various schemes have been proposed from time to time, under which the ratio of the highest coin of account to another coin of the system is either 200 or 250, these being the numbers nearest to 240 which are exact sub-multiples of a power of 10. Any of these schemes would give a decimal coinage, but whichever (if any) is ultimately adopted, the fact must be faced that either the present pound or the penny must be abandoned. This fact constitutes the basic difficulty of the situation, and it is so important that all proposed schemes of reform may be divided into two classes according as to whether the pound or the penny is amended. If the pound is altered in value, the change will profoundly affect higher mercantile transactions, banking, legal contracts, wholesale business, and the foreign exchanges, in short, all financial transactions in which large amounts are involved. On the other hand, if the penny is altered in value, then the poorer classes especially must face an alteration in the conditions governing the immense mass of retail transactions in which only bronze coins are used. The penny has been called the "monetary unit of the proletariat," and if any alteration were effected in its exchange value, the transition period would undoubtedly involve difficulties.

(iii) *Outline of Various Schemes.* The advantages and disadvantages of the more important schemes of reform propounded from time to time may now be discussed. The leading ones are as follows:—

A.—Systems Based upon the Pound.

- (a) *Pound-mil System.* Under this system the pound is divided into 1,000 parts each called a mil. The half-sovereign is retained as 500 mils, and the florin as 100 mils; the shilling as 50 mils, and the sixpence as 25 mils. The half-crown and threepenny piece would be withdrawn, and replaced by a nickel piece of ten mils. The bronze coinage would probably be 5, 4, 2, and 1 mils.
- (b) *Florin-mil System.* This is really a variation of the pound-mil system, with the florin as highest coin of account. It requires only two places of decimals instead of three.
- (c) *Shilling-cent System.* Under this system the shilling is taken as the highest coin of account and divided into 100 cents. The ten-cent piece, which is 20 per cent. in excess of the present penny, has been termed the "high value" penny.

B.—Systems Based upon Bronze Coinage.

- (a) *New Guinea System.* This system is based upon the farthing. Three new coins of account would be necessary, viz., 10 farthings (2½d.), 100 farthings (2s. 1d.), and 1,000 farthings (£1 0s. 10d.), constituting the "new guinea."
- (b) *Royal System.* This is based upon the half-penny, which is the lowest coin of account. The highest coin of account is a silver coin of 100 half-pennies called a royal. This scheme was submitted to the Commission of 1920 by Lord Leverhulme.
- (c) *Imperial System.* This is based upon the penny, which is the lowest coin of account, the highest being a coin of 100 pence. The earliest advocate of the scheme seems to have been Dr. John Gray, who was for 50 years connected with the British museum, but it appears to have been first definitely formulated in 1854 by Mr. Frederick Minasi, who called the highest coin of account an imperial. This system has recently been revived in Melbourne under the title of the "*Via Media Currency.*"

(iv) *Comparison of Schemes.* The advantages and disadvantages of schemes based respectively upon the pound and the bronze coinage have already been discussed. A brief comparison between the schemes included in each group is given hereunder.

In the first group the pound-mil scheme was first in the field, and has always commanded a large volume of support. Its special advantage over the other members of its group is that computations in statistics, funded debt, and higher finance generally are undisturbed. Moreover, the pound sterling has an immense international prestige. Its greatest drawback is that three places of decimals are required, since the pound contains 1,000 mils.

The florin-mil system has an advantage over the pound-mil system in requiring only two places of decimals. It has been opposed in the past from the feeling that the prestige of the pound sterling would be adversely affected.

The shilling-cent system is subject to the same remarks as the florin-mil, with the additional comment that computations in statistics, funded debt and finance would this time require a multiplying factor although only a very simple one.

Turning to the three schemes which decimalise the coinage from the other end, the "new guinea system," the weakest of the three, may be dismissed in a very few words as combining nearly all the drawbacks of other schemes with no countervailing advantages. It was decisively rejected by the Royal Commission of 1853, and has never since been seriously revived.

This leaves the scheme of Lord Leverhulme and the Imperial system. In principle they are much the same, the "Royal" being 100 half-pennies, and the "Imperial," 100 pence. In practice, however, the "Royal" system involves five new coins, and suggests that the earlier difficulties might be greater than those involved in the "Imperial" or "*Via Media*" system. In this respect the "Royal" scheme is much inferior to the "pound-mil" scheme, which could be started in operation by the issue of two new coins only, the 1 mil and 5 mil.

In connexion with these two schemes it may be noted that they have been advocated, and very reasonably, as a means of avoiding the transitional difficulties inherent in any change involving an alteration in the value of the penny. But within the last few years it has been claimed on behalf of both systems that they will render possible a linking up of the coinage systems of all the English-speaking countries. The "Royal" and "Half-imperial" are both 50d., while the value of the dollar circulating in the North American continent is 49.316d. This certainly constitutes a close approximation, but it is not that absolute coincidence which in this matter is all essential.

6. History of Decimal Coinage Movement in Great Britain.—The following survey of the movement in Great Britain is condensed from the report of the Royal Commission of 1920.

The matter first came into prominence in 1824, when Sir John Wrottesley brought before the House of Commons a motion for enquiry into the applicability of the decimal scale to coins. The date is interesting, for by that time sufficient evidence had accumulated from France and America to shew that a decimal system was not only good in theory, but satisfied also the practical canons in relation to coinage alluded to earlier in the present article. The experience of France was particularly interesting, as the old coinage which was displaced ran as follows:—12 deniers equalled 1 sou; 20 sous equalled 1 livre. In other words the relationship between livres, sous, and deniers was exactly the same as that between pounds, shillings, and pence. Wrottesley's motion was withdrawn, on the understanding that the currencies of Great Britain and Ireland should be assimilated, which was done in 1825. Wrottesley proposed a scheme which was practically the pound-mil scheme. A similar recommendation was made by a Commission in 1841, and again in 1843. Sir John Bowring, in 1847, brought forward a motion in the House of Commons in favour of the coinage and issue of silver pieces of the value of 1/10th and 1/100th of a pound sterling. The motion was withdrawn on the understanding that a silver piece of the value of 1/10th of a pound should be coined and issued. This undertaking was redeemed shortly afterwards by the coining of the florin, and to this day it remains the only step ever taken by the United Kingdom in the direction of decimal coinage.

In 1855 Mr. Brown, a leading decimalist, carried two motions in the House of Commons to the effect that—(1) In the opinion of this House, the initiation of the decimal system by the issue of the florin has been eminently successful and satisfactory: and (2) That a further extension of the system will be of public advantage. In view of the public

interest aroused in the subject, another Royal Commission was appointed in 1856. On this occasion, the advocates of schemes based upon the penny urged their case, Dr. John Gray being prominent. The result was that the Commission, whilst rejecting schemes based upon the penny, and considering the pound-mil scheme to be the only one which would have any reasonable chance of sufficient support, nevertheless decided that the adoption of any system of decimal coinage would introduce difficulties which would outweigh the corresponding advantages. The matter then remained in abeyance for half a century, as far as the United Kingdom was concerned. The question was revived again in the early years of the twentieth century at two Imperial Conferences, the representatives of Australasia taking the lead. The resolutions introduced were ultimately dropped when it became evident that the Imperial Government was not prepared to take any steps. After a rather perfunctory examination of the question by Lord Balfour of Burleigh's Committee in 1916, the subject was again reviewed by the recent Royal Commission which reported in February 1920.

The conclusions of this Commission were substantially the same as those of the Committee of 1856. They examined the three possibilities of the situation, (a) the adoption of a decimal scheme based upon the bronze coinage, (b) the adoption of a decimal scheme based upon the £, and (c) the retention of the present system. The evidence submitted by the Bankers' Institute, Chambers of Commerce, and manufacturers, convinced the Commission of the danger of abandoning the pound, and consequently scheme (a) was rejected as impracticable. Scheme (b), on account of the steady support which it has enjoyed, received serious consideration, but was finally abandoned on account of the transitional difficulties. The majority of the Commissioners—13 out of 20—signed a report recommending the retention of the present system, while out of the remaining 7 members 4 supported the pound-mil scheme, and 3 the "Royal" scheme of Lord Leverhulme.

The preceding historical survey brings into prominence two matters so far as the experience of the United Kingdom is concerned. Firstly, it is evident that the influence of higher finance is so strong that any scheme based upon the bronze coinage has little hope of acceptance. Two of these schemes differing in detail have been decisively rejected. Secondly there is the fear that any scheme based on the pound, which alters the value of the penny, would be distasteful to the poorer classes. This attitude has been adopted by such eminent public men as Gladstone and Asquith. So far as the United Kingdom is concerned, matters seem to have reached a deadlock.

It may be noted that the report of the Commission of 1920 contained one statement which is open to question. In referring to the Commission of 1856 it was remarked that "the intervening years have brought no fresh factors to be taken into account." While it is true that much of the evidence given in 1920 could equally well have been given in 1856, nevertheless since the earlier period a considerable amount of new ground had been broken. In the first place the supporters of the pound-mil scheme urged that the adoption of their system would provide a smoother gradient in relation to prices. This furnishes a distinct argument in favour of their scheme if it can be sustained. As noted previously the English gold coins, the silver coins from florin to threepence inclusive, and the bronze coins, all exhibit a binary progression, and the ability to allow of this binary progression is generally admitted to be a strong point in any coinage system. The farthing has dropped out of circulation, leaving the penny and half-penny as the lowest coins. Consequently the large number of articles and services which formerly cost a penny can now only be altered in accordance with the cost of living by an increase of 50 per cent.; and this excessive increase has certainly had its influence on index numbers in the last few years.

Under the proposed pound-mil scheme it is likely that the following coins at least would appear:—5 mils, 2 mils, and 1 mil. A newspaper which was priced at 5 mils could then be increased to 6 mils, an increase of 20 per cent. If prices should fall in the future, a newspaper which had been raised to three half-pence could be reduced to 5 mils during the transition stage, which would be a substantial reduction in cost without an actual reversion to the pre-war price of one penny.

It may be noted at this stage that a decimal system of coinage admits of binary progression just as well as a duodecimal. An excellent instance is furnished by the French system, which affords an almost perfect example of subdivision. The French coins expressed in centimes are as follows:—1, 2, 5; 10, 20, 50; 100, 200, 500, etc., up to

10,000 centimes or 100 francs. Excluding the two lowest they may be re-arranged as follows:—5, 10, 20; 50, 100, 200; 500, 1,000, 2,000, etc. Each of these groups of three forms a binary system.

This argument in favour of the pound-mil system based upon an improved gradient is counteracted in the United Kingdom by another which is adverse to the pound-mil, but not to any scheme based upon the penny. Under the National Health Insurance Scheme there are 15 million insured persons, and there are also upwards of 50 million of industrial assurance policies in force. Excepting in the comparatively few cases where the premiums are multiples of sixpence, these contracts could not be adjusted exactly to a decimal system based upon the pound sterling. Several schemes to meet this difficulty were propounded to the Commission of 1920, but none could be considered entirely satisfactory. If these millions of insured persons came from a class which was financially well-educated the difficulty of adjustment would not arise.

7. **The Movement in Australia.**—The subject of decimal coinage has always commanded considerable interest in Australia. In 1903 a Select Committee of the House of Representatives which had studied the question, and examined witnesses, presented a report to the House advocating the adoption of the pound-mil system. The House debated the report and finally adopted it by a small majority. The Australasian representatives at two Imperial Conferences have raised the subject, but refrained from moving formal resolutions in order not to embarrass the British Government. As a further indication of local opinion it may be recorded that the Commonwealth Government, upon becoming responsible for the minting of silver coins, deliberately excluded the half-crown in order to facilitate the transition to a decimal coinage, should such a step be undertaken in the future.

It will be seen, therefore, that public opinion in Australasia is more advanced upon this matter than in the United Kingdom. If the Royal Commission of 1920 had reported favorably upon decimal coinage, and the Imperial Government had adopted it, the reform would almost certainly have been adopted in Australia. Up to the present the official attitude seems to have been to wait upon action by the Home Government. Whether this will be maintained in the future is not certain, for a new factor is coming into play. The outer marches of the Empire are beginning to stir.

8. **Activity in British East Africa.**—It has already been pointed out in a previous paragraph that the British East African Protectorate has a decimal coinage based upon the florin. Up till 1919 its principal coin was the rupee, which was legal tender at the rate of 15 to the pound. In order to avoid exchange difficulties this currency was abolished and the florin was substituted. To meet the wishes of the mercantile community, however, the decimal subdivision was retained, and British East Africa was thus the first community to establish a variant of the pound-mil system. The significance of this step lies not so much in the political importance of British East Africa, as in the fact that the step was presumably taken with the full concurrence and approval of the Colonial Office.

9. **South Africa, West Africa, and the West Indies.**—The Union of South Africa was the next unit to take up the consideration of decimal coinage, and a Bill for its establishment is under discussion at present. If South Africa should adopt the florin-mil scheme it is possible that the West African colonies, Zanzibar, Mauritius, Somaliland and Seychelles, will follow suit, thus forming a solid African group.

Recently a committee was formed with a view to reforming the currency of the West Indies, where opinion in favour of the decimal system is strong. If the reform was established there, it would leave Australasia and the United Kingdom the sole remaining countries which had abstained from adopting decimalism in coinage.

SECTION XXII.

PUBLIC INSTRUCTION.

§ 1. Evolution of Educational Systems in Australia.

1. *Educational Systems of the States.*—(i) *Place of New South Wales in Australian Education.* The first settlement in Australia being in New South Wales, it is but natural that Australian education should have had its beginning in that State. In the evolution of educational method and system in Australia, New South Wales also has played a leading part, and has had practically a dominating influence. For that reason an account of the evolution of education in this State contains, as it were, the key to the understanding of the Australian attitude to this question. The subject is dealt with in some detail in No. I. and No. II. issues of the Commonwealth Official Year Book, but it is not proposed to repeat it in the present volume. (See also 2 hereunder.)

(ii) *Educational Systems of Commonwealth States.* A more or less detailed account of the origin and development of the primary educational systems of the other States also appears in No. I. and No. II. issues of the Year Book. Later details are given hereunder.

(iii) *Medical Inspection of State School Children.* See Section XXX. Public Hygiene, § 8.

2. *Recent Development in State Educational Systems.*—(i) *New South Wales.* The year 1913 was an important one in New South Wales educational history, in that it was the first complete year of active operation of the principles laid down in the University Amendment Act and the Bursary Endowment Act of 1912. More extended reference to these Acts will be found later on. It was also remarkable for the reorganisation of technical education on a Trades School basis and of the Superior Schools on a vocational basis. Reference may also be made to the development of the Evening Continuation Schools established in 1911, and to the wide extension of the scheme of school medical inspection. As pointed out in a preceding Official Year Book (see No. VII., page 765), the Education Department instituted a scheme of examinations in 1911 for what were termed respectively the "qualifying," "intermediate," and "leaving" certificate. The first "qualifying" examination was held in March, 1911, the first "intermediate" in November, 1912, and the first "leaving" in November, 1913. The successful students who were awarded exhibitions at the leaving certificate examination took up University studies in the first term of 1914, thus marking the definite linking up of the State School system with the University. Amongst noteworthy features in the year 1914 were the remarkable increase in school population, the establishment of Trade Schools, the expansion of secondary education, and the extension of the scheme of school medical inspection. The travelling hospital and the travelling ophthalmic and dental clinics are rendering splendid service in the remote and sparsely settled districts. During the last few years increasing attention has been devoted to the development of infant schools on the lines of awakening a larger sense of responsibility amongst the young children by giving them a greater measure of freedom. It is recognised by modern educationists that freedom coupled with responsibility lies at the root of all true education.

A school clinic, under the direction of Lecturers in Education from the Training College, was opened in the metropolis during 1918. The object of this institution is to examine and to suggest suitable treatment for children reported by their teachers as shewing special disabilities for school work.

During 1917 and 1918 the provisions of the Public Instruction (Amendment) Act of 1916 were found to have exercised a marked influence on school attendance, and in many schools the average exceeded 90 per cent. of the effective enrolment. The average for all schools in 1920 was about 83 per cent., but abnormal conditions as to sickness were responsible for very small returns from many schools.

Arrangements were made during the year 1917 for the teaching of Japanese in selected High Schools, and in 1918, classes were begun at North Sydney and Fort-street Boys' High Schools.

In his Report for the year 1920, the Minister drew attention to the disabilities under which the Education Department was labouring owing to shortage of teachers, and shortage of funds to provide necessary new buildings, equipment, and renovations. The difficulty in regard to the supply of teachers has in part been overcome by the provision of a more liberal scale of salaries, but it will be some time before full provision can be made for the needed buildings and equipment.

It has been found that a large proportion of children leave school at the age of fourteen years or thereabouts. As in other countries, it is realized in New South Wales that this removal from educational guidance at the very time when such formative influences are so necessary is against the best interests of the children and the State, and it is intended to submit proposals to Parliament for continuous training to an extent which will give more adequate preparation for the responsibilities of adult life.

(ii) *Victoria.* Under the Amending Education Act of 1910 it is provided that every child must attend school for the full period of eight years between 6 and 14, unless he be given a certificate of education at 13. The schools are open on an average 225 days in each year, and require attendance on all these days, unless reasonable excuse is forthcoming. Provision is made for the mentally deficient. The primary curriculum divides the school life into eight grades, so that a child entering at six years of age should have completed the full course by the time he reaches his fourteenth year. After completion of the elementary school course, the pupil may go on to the Evening Continuation Schools, Higher Elementary Schools, District High Schools, or the Trade Schools. Special schools for feeble-minded children have been established in the metropolis, and an "open air" school for delicate children is in operation at Blackburn. There is also a special school for epileptics at Clayton. Highly encouraging results have been obtained at all these institutions. A Council of Public Education has been appointed to advise on educational matters generally, and particularly in regard to co-ordination. Examinations are held throughout the State for the certificate of merit and the qualifying certificate. The former is granted to pupils who, under prescribed conditions, reach a satisfactory standard in subjects prescribed for Grade VIII., while the latter is awarded to pupils who reach a satisfactory standard in Grade VI. Possession of this certificate enables the holder to enter upon the work of the Higher Elementary or the District High School. Acting on the advice of the Council of Education, the Melbourne University has established a Schools Board. The function of this body is to consider all questions relating to school studies and the inspection and examination of schools. In addition to University representation, there are also on the Board representatives of the Department of Education, the registered Secondary Schools, and the business interests of the community. Being with wide powers, this Board must of necessity be the chief guiding factor in the development of education in Victoria. During the year 1915 a considerable amount of attention was devoted to the organisation of the elementary schools, especially in connexion with the question of retardation, and in regard to the teaching of infants. It is found that the greater flexibility in organisation and system of promotions, coupled with special methods of dealing with backward pupils, tends to lower considerably the retardation percentage. The institution of the uniform school year, the greater powers conferred on the head teachers in regard to the promotion of scholars, the making of the inspector an advisory rather than an examining officer, and the better provision for the practical training of the junior teachers have all been fraught with excellent results. During recent years methods of training teachers have been considerably improved. Formerly there was only one course leading to the trained teacher's certificate. At present four courses are provided—primary, secondary, infant, and short course for teachers of rural schools.

(iii) *Queensland.* The Amending Act of 1910 introduced several new features into the educational system of Queensland, chief amongst them being—(a) employment of proceeds of sales of land and other school property for school purposes, instead of paying them into Consolidated Revenue; (b) abolition of local contributions; (c) provision of scheme of school certificates to assist in co-ordination of various branches of the system; (d) establishment of compulsory continuation classes; (e) compulsory medical and dental examination; (f) raising the compulsory age to 14 years instead of 12 years; (g) provision

for compulsory attendance on every day on which the school is open. The last-mentioned provision has already produced good results in regard to improved attendance. The organisation of the general scheme of education is being systematically developed. State High Schools were inaugurated in February, 1912, and a more liberal scheme of scholarships to secondary schools came into force in 1913, while further amendments were made in 1914, 1915, and 1918. A Teachers' Training College has been established, and greater attention is being given to the development of technical education. Methods of instruction have been brought into consonance with the latest developments under the new syllabus adopted in 1914. During this year also the medical and dental inspection of State School children were considerably extended. Reference to the new system adopted in 1920 in connection with the choice of entrants to the teaching profession will be found in § 2, 10.

(iv) *South Australia.* The chief features of the year 1920 were (a) the issue of a new course of instruction for primary schools, and (b) the inception of new methods in regard to the training, examination, and classification of teachers. With respect to (a), the course of instruction was compiled by a body consisting of about twenty selected teachers, the inspector, and the members of the Curriculum Board in conjunction with the Superintendent of Primary Education and the Director. The new syllabus shortens the time spent by an average child in the primary schools from eight to seven years, and is designed to shew the scope and nature of the studies and the character of the training for each of the seven grades. A special syllabus has been compiled for the small one-teacher schools. In regard to (b), the scheme aims at providing better trained and educated teachers, especially for the country schools. (See also § 2, 10, hereinafter.)

Methods of inspection have been revised with the idea of affording more scope and freedom to the teacher, and permitting the inspector, while not neglecting fundamentals, to give more time to advising and helping in the attainment of satisfactory results.

Attention is also being given to the establishment of separate infant schools wherever possible in order to overcome retardation and secure higher efficiency in the lowest grades.

A Correspondence School was established in the beginning of the year to meet the needs of children living beyond the reach of existing educational agencies.

All recently built schools conform to the latest approved principles in regard to orientation, lighting, and furniture, while the conversion of older buildings is being taken in hand so far as funds will permit.

(v) *Western Australia.* During 1912 the curriculum of the Primary Schools was remodelled in order to bring it into line with the most up-to-date principles. The work was lightened in directions where experience shewed there was overloading, and efforts were particularly directed toward the removal of the abstract and to the development of the imaginative and constructive throughout all grades. Greater freedom was given for experiment by the teacher, and it is recognised that considerable improvement has resulted. Montessori principles are being increasingly adopted in the teaching of the youngest children. Constructive work is receiving greater attention in all departments, and encouragement is given to original or research work of an elementary character. Four special courses—commercial, industrial, domestic, and professional—have been established at the central schools. These schools are practically day continuation schools designed to carry on the education of boys and girls beyond the primary stage. Continued efforts are being made in the direction of bringing about a closer correlation between primary and secondary education. The Modern School at Perth was opened in 1911, and in June, 1914, a Goldfields High School was opened at Kalgoorlie. District High Schools are in operation at Geraldton, Albany, Bunbury and Northam, and it is proposed to establish additional schools at the larger country centres, and in the meantime to grant scholarships at the existing High Schools to country children. Continuation classes were held at 24 centres in 1920, with an enrolment of 2,873. Certificates granted to successful students entitle the holder to advanced tuition at the Technical College. During 1917 a medical officer for schools was appointed under the Public Health Department. Legislation passed in 1919 made compulsory the education of blind, deaf and dumb children, either at home or in special institutions.

A further revision of the curriculum was made in 1920, mainly with the object of removing superfluities, and devoting greater attention to the formative side of education. Special attention is being given to the problem of dealing with feeble-minded children.

The experiment was tried in Perth during 1920 of grouping these children in classes at the central schools and giving them instruction in handwork and domestic science coupled with a modified curriculum in the ordinary school subjects. Results were so satisfactory that it is hoped to extend the system to other centres.

(vi) *Tasmania.* During the last few years educational effort in Tasmania has been directed to the development on modern lines of the primary system, the foundation of secondary schools, and the provision of a satisfactory system of training for teachers. Kindergartens, Montessori Schools, and Model Country Schools have been established as adjuncts to the training system, and the courses have been remodelled with a view to providing trained teachers for secondary as well as for primary work. At the High Schools, secondary, commercial, and industrial courses have been established. School hygiene has received especial attention, doctors and nurses have been appointed, and two dental clinics have been established. During the year 1918, regulations were framed with the object of establishing separate infant departments under a trained mistress. Several have already been established, and it is proposed to open additional schools of this type as opportunity offers. Provision has been made for an extension of the system of teaching by correspondence for children in isolated districts. Improvements effected in 1920 in the system of training teachers are alluded to later on.

(vii) *Northern Territory.* Although the number of children of school age in the Territory is small, nevertheless ample provision has been made by the Commonwealth Government for their education. State schools are in operation at Darwin, Parap, Pine Creek, Alice Springs, and Emungalan. There is also a school for aboriginal and half-caste children at Kahlin Compound, Darwin. A satisfactory standard is maintained at the schools, but progress is somewhat retarded by irregular attendance. Continuation classes are available at Darwin for cadets in Government employment and for others.

(viii) *Present Position of State Education in Australia.* Throughout Australia primary education is compulsory and free of charge, while there exists in most of the States a liberal provision of scholarships and bursaries to the Higher State Schools, to the Secondary Schools, and to the Universities. Provided that the requisite standard is reached, it is, of course, permissible for children to receive home tuition, or to attend so-called private schools. Considerable interest is taken in educational matters by the people of the Commonwealth, and within recent years several of the States have sent qualified representatives to inspect and report on the methods adopted in the chief countries of Europe and America. The reports of these Commissioners, especially those of New South Wales, have been widely studied, and various improvements have been made in accordance with their recommendations. The orientation, lighting, and ventilation of school buildings are being modernised. In all of the States periodical medical inspection of the children is in force. (A detailed statement of the work being done in this direction will be found in the chapter dealing with Public Hygiene.) Methods of training teachers are now better developed, and although the "pupil teacher" system with its effects have not been wholly eliminated, it appears to be gradually vanishing. (The methods adopted in the various States for the selection and training of teachers are described in some detail in § 2, 10, hereinafter.) There has been a wider employment of kindergarten principles in the early stages, and the more or less purely abstract teaching of the older days has been largely replaced by concrete methods. Such subjects as nature study, manual training, music, and drawing have received a general impetus. Greater attention has been given to the scientific classification of children. Moreover, as will be seen from the above, and from § 2, 7, the State Education Departments are increasing their activities in the direction of secondary education. Lastly, the system of inspection has been considerably remodelled. Under the old system, the inspector was little more than an examining officer, but, under the present régime, the primary duty of this officer consists in guiding and directing the teaching in accordance with approved methods. [See also § 6, Technical Education.]

(ix) *Co-ordination of Educational Activities.* As pointed out already, the educational system of New South Wales may now be considered as a more or less homogeneous entity, the various stages succeeding one another by logical gradation from kindergarten to university. In the other States development is proceeding on somewhat similar lines, although in varying degree. [See also § 1, para. 2 *supra*.]

(x) *Educational Conferences.* In May, 1916, the first Conference of Directors of Education in the States of the Commonwealth was held at Adelaide. Amongst important matters discussed thereat may be mentioned :—(a) *Education Reports (Departmental).* In regard to these a decision was arrived at respecting the general principles which should govern the preparation of future reports in order to ensure uniformity so far as the compilation and presentation of statistics relating to enrolment, attendance, and finance are concerned. (b) *Raising School-age Limit.* In view of the circumstance that educational expenditure has, up till now, been largely wasted owing to school attendance ceasing at the age of 14 in the case of so many children, it was resolved that legislation is desirable providing for continuous education up to the age of 16, and that attendance be made compulsory except where special exemption could be granted on the ground of educational fitness. (c) *Schools for Defectives.* At present New South Wales and Victoria have a school each of this type, but it was agreed that such schools ought to be provided where required. (d) *Other Special Schools.* Each State is making experiments in regard to the provision of new types of schools giving industrial and secondary instruction, and arrangements were made for the exchange of detailed information in regard to their working. (e) *Sex Physiology.* The Conference was opposed to the introduction of special teaching on this subject, and it was affirmed that efforts should be directed towards excluding all thought and talk about sex matters from the schools. It was agreed, however, that the Departments should prepare a special leaflet setting forth the duties of parents in this direction. The second Conference was held in Melbourne in June, 1918, and the third in Sydney in October, 1920. Amongst other important matters discussed at the third Conference were exchanges of inspectors and teachers; publication of text books; medical inspection; systems of training teachers; the special needs of small country schools; physical training; and the education of children of diseased and permanently incapacitated soldiers.

§ 2. State Schools.

1. *Introductory.*—The State Schools, or, as they are sometimes termed, the “public” schools, of the Commonwealth comprise all schools directly under State control, in contradistinction to the so-called “private” schools, the bulk of which, though privately managed, nevertheless cater for all classes of the community. Separate information regarding Technical Education is given in § 6.

2. *Enrolment and Attendance.*—The following table shows the number of State Schools, together with the teachers employed and the enrolment and “average attendance” in each State during the year 1920 :—

STATE SCHOOLS, TEACHERS, AND SCHOLARS, 1920.

(COMMONWEALTH.)

State or Territory.	Schools.	Teachers.(a)	Scholars Enrolled.	Average Attendance.
New South Wales(b)	3,163	9,033	304,373	234,657
Victoria (1919)	2,406	6,679	218,761	170,402
Queensland	1,604	4,349	118,634	94,602
South Australia	980	2,716	75,681	61,649
Western Australia	675	1,676	52,565	45,145
Tasmania	470	1,097	31,027	25,498
Northern Territory(c)	6	9	364	229
Commonwealth	9,304	25,559	801,405	632,182

(a) Exclusive of sewing mistresses. (b) Including Federal Territory. (c) Year ended 30th June.

Unfortunately, the schemes of enrolment and of the computation of “average attendance” are not identical in each State, so that the comparisons are imperfect.

The enrolment and average attendance at the State Schools in the Commonwealth are given below for the years 1891, 1901, 1911, and for each year of the period 1916 to 1920 :—

ENROLMENT AND ATTENDANCE AT STATE SCHOOLS, 1891 TO 1920.

(COMMONWEALTH.)

Year.	Total Population (a)	Enrolment.	Average Attendance.	Year.	Total Population (a)	Enrolment.	Average Attendance.
1891 ..	3,241	561,153	350,773	1917 ..	4,983	764,980	600,089
1901 ..	3,825	638,478	450,246	1918 ..	5,082	779,687	612,174
1911 ..	4,573	638,850	463,799	1919 ..	5,304	782,317	608,069
1916 ..	4,919	751,126	569,306	1920 ..	5,412	801,405	632,182

(a) At 31st December, in thousands.

3. *Schools in the Federal Capital Area.*—During the year 1920 fourteen State Schools were in operation in the Federal Territory (Yass-Canberra). The pupils enrolled numbered 373 and the average attendance 263. Cost of upkeep in 1920 amounted to £4,415. By arrangement with the Federal Government these schools are conducted by the New South Wales Education Department on the same lines as the ordinary State Schools, the Department being recouped for expenditure.

4. *Centralisation of Schools.*—The question of centralisation of schools adopted so successfully in America and Canada has received some attention in the Commonwealth, and particularly in New South Wales. It is recognised that a single adequately-staffed and well-equipped central institution can give more efficient teaching than a congeries of small scattered schools in the hands of less highly trained teachers, and the small schools in some districts were therefore closed and the children conveyed to the central institution. The principle was first adopted in New South Wales in 1904, and in 1920 the conveyance of pupils was authorized in the case of 820 schools at a cost of £23,000.

5. *Education in Sparsely-settled Districts.*—It has always been the aim of the State to carry the benefits of education into the remotest and most sparsely-settled districts. This is effected in various ways. (i) By the establishment of Provisional Schools, i.e., small schools in which the attendance does not amount to more than about a dozen pupils, these institutions merging into the ordinary public school list when the attendance exceeds the minimum. (ii) When there are not enough children to form a provisional school, what are known as Half-time Schools are formed, the teacher visiting them on alternate days. (iii) In still more sparsely-peopled districts, an itinerant teacher goes from house to house within a certain radius. Thus, in Queensland during 1920 the 18 itinerant teachers covered 536,000 square miles of country and travelled 62,344 miles to visit 1,809 children. In this State also the Education Department has established what are known as Saturday Schools, in which small groups of children in outlying districts are visited by the nearest teacher on Saturdays and receive the benefit of several hours' instruction. These schools, of which there are now ten, have been warmly welcomed in the districts in which they are established, inasmuch as under this system the children "outback" receive a greater amount of instruction than is possible under the system of itinerant teachers. Provision has been made for a vocational "top" to be established at schools in important distributing centres of inland pastoral areas in Queensland, and at Longreach, Barcaldine, Charleville, Mitchell and Geham special classes receive instruction in manual work, commercial work, and domestic economy. Itinerant teachers capable of imparting instruction in domestic and manual work have also been appointed to visit parents and children at various localities in the Central District. In New South Wales, Victoria, South Australia, Western Australia and Tasmania parents in the thinly-peopled areas are also allowed to club together and build a school, which receives aid from the Government in the form of a yearly subsidy and grant of school material. In some cases the Department also provides the building. At the close of 1920 there were 509 subsidized schools in New South Wales. (iv) An experiment

on the part of New South Wales, the result of which was awaited with some interest, was the establishment in 1908 of a "Travelling" School. A van was provided in which the teacher travelled, carrying with him a tent for himself and one to be used as a school, together with such books and apparatus as are required in a Primary School. Two additional schools of this nature were established in 1914. (v) There are also railway camp schools in operation on the sites of extensive railway works. In South Australia, attractive portable schools have been designed to meet the needs of new districts and settlements of a temporary character.

Regulations were framed in Tasmania during 1912, providing for the subsidizing of private teachers at a rate not exceeding £6 per pupil in districts too remote or sparsely settled to warrant the establishment of an ordinary Provisional School. The schools of this nature operating in 1920 had an enrolment of 677 scholars. During the year the department also paid for the conveyance of a number of children to schools by boat, vehicle, or train.

New South Wales, Victoria, South Australia, Western Australia, and Tasmania provide for education, by correspondence, of children in isolated districts. In South Australia it is stated that the children of one family are 400 miles from the nearest school. Another family of four are 320 miles distant from a school, and several families live along the camel tracks in the far north. The Port Augusta School supervises the work of twelve children living along the East-West railway line. In 1920 a special Correspondence School, staffed with five teachers, was opened in Adelaide. Fifteen teachers are attached to the Correspondence branch in New South Wales. There are nine teachers attached to the Correspondence School in Hobart, and a visiting teacher toured the whole island, calling, as far as possible, at all the isolated dwellings.

6. **Evening Schools.**—Evening Public Schools have been in existence for many years in some of the States, but their progress has been uncertain. In New South Wales the 41 Evening Continuation Schools had an average attendance in 1920 of 1,950. It is pointed out by the Inspector of these schools that future extension depends on the introduction of some form of compulsory attendance. In Victoria there was only one night school in operation for elementary work during the year, the average attendance being 31. It is stated that future developments in evening instruction will be in the direction of continuation classes, of which there was at latest available date one, with an average attendance of 81. Although the Education Act in Victoria gives authority for the establishment of evening continuation classes at which the attendance of boys up to the age of seventeen years and living within a radius of two miles may be made compulsory for six hours a week, considerations of expense have prevented the exercise of this power. Western Australia has evening continuation classes in 24 centres; the enrolment in 1920 numbered 2,873. Evening Continuation Schools have been established under regulation in South Australia, and are intended principally to help the working boy to improve his general education and to add to the store of knowledge most useful in his present work.

7. **Higher State Schools.**—(i) In *New South Wales*, public schools which provided advanced courses of instruction for two years for pupils who have completed the primary course were classed as *Superior Schools*. These were reorganised in 1913 as Day Continuation Schools, and divided into Superior Commercial Schools, Superior Junior Technical Schools, and Superior Domestic Schools for Girls. During 1920 there were 88 schools of this type in operation, of which 17 were in the Commercial group, 24 in the Junior Technical, and 47 in the Domestic group, with an average attendance of 5,820 in the sixth and seventh classes. It is believed, however, that greater efficiency could be produced by reducing the number of these schools and establishing Central "Superior Public Schools" instead. Provision has also been made for the more advanced education of children in country centres by the establishment of 11 District Schools. These schools are specially staffed, and, in addition to the usual work, undertake the preparation of students for admission to the training colleges. There are also 27 *High Schools* in the State. These had an enrolment in 1920 of 8,194, with an average attendance of 6,656. To meet the wishes of representatives of the registered Secondary Schools, the syllabus of the High Schools was amended in 1913, and now offers such a wide range of choice in the selection of subjects that there is no possibility of producing a merely stereotyped uniformity of study. Four "Intermediate" High Schools were established to meet

the growing demand for High School education in the metropolis and in country centres, and in 1920 the number had increased to 23, with an average attendance of 3,230. During 1919 further provision was made for higher education by the institution of a composite course of instruction at various country schools where only a small number of pupils can be grouped. The course includes practically all secondary subjects and has been extended to about 45 schools. Hostels have been provided in connexion with the High Schools at Albury, Goulburn, Hay, East and West Maitland. In accordance with Departmental regulations liberal provision is made for scholarships and bursaries to the higher State Schools and to the University. Under the provisions of the University Amendment Act of 1912, 200 exhibitions were awarded in 1920 to successful students at the leaving certificate examinations, and 96 of these were given to pupils attending the State Schools, and 104 to students of registered secondary schools.

The Sydney Grammar School (not a "State" School in the ordinary acceptation of the term), which receives a State endowment of £1,500 a year, had, in 1920, a quarterly enrolment of 622 pupils, and an average attendance of 579.

During 1917 the State School of Aviation at Richmond was transferred to the control of the Education Department. The school served a military purpose during the war, but it is hoped that it will henceforward prove of great commercial value to the State.

(ii) In *Victoria*, action was taken in January, 1912, to give effect to the provisions of the Education Act of 1910, with regard to the decentralisation of the system of secondary education. Thirty-six Higher Elementary and 31 District High Schools have been established, and, to obviate congestion at the High Schools, Higher Elementary Classes are carried on at 15 "Central" Schools in the larger cities, and 3 in country towns. The enrolment on the 1st January, 1920, at the Higher Elementary Schools was 2,047, of whom 1,062 were girls, at the District High Schools 6,177, of whom 3,012 were girls, while 644 boys and 748 girls were receiving secondary teaching in the Central Schools. The qualifications for admission to the High Schools and Higher Elementary Schools are that pupils shall be not less than 12 years of age, shall possess the qualifying certificate or its equivalent, and that their parents shall undertake that the children will remain at school for four years. For the first two years there is a common course for all pupils, thereafter replaced by four special courses:—(1) A preparatory professional course for pupils preparing to proceed to the University, to enter the teaching profession, or to gain a sound general education; (2) an agricultural course to be taken in Agricultural High Schools; (3) a commercial course; and (4) a domestic arts course for girls. Parallel with these courses an industrial course has been developed for pupils who intend to enter upon some form of industrial occupation.

The demand for places in the metropolitan High Schools is in excess of the available accommodation, and although the "Central" Schools, already referred to, have to some extent relieved the congestion, increased provision is urgently needed.

Junior Technical Schools have been established apart from the High Schools in Melbourne, Ballarat, Bendigo, and Geelong, and there are schools also at Glenferrie, Collingwood, Sunshine, and Warrnambool.

Schools of Domestic Arts have been established—three in Melbourne, one in Ballarat, and one in Bendigo. At these institutions, in addition to continuing their general education, the girls receive special instruction in cookery, needlework, and various home duties. A modified course in domestic arts is given to senior pupils in Maryborough and Castlemaine.

Scholarships granted by the Department are as follows:—(a) One hundred junior, tenable for four years at a District High School or approved Secondary School, with allowance of £26 per annum for board where required; (b) Forty senior, tenable four to six years, with allowance of £40 towards expense of course at University; (c) Fifty junior technical, giving free tuition for two years at a Junior Technical or other approved school, and, in certain cases, board allowance of £26 per annum; (d) Fifty-five senior technical, giving free tuition for approved courses at Technical schools, with £30 allowance for day students, and £10 for night students; (e) Sixty teaching, similar in other respects to junior; (f) Twenty nominated courses, giving four to six years' free tuition in agriculture, mining, or veterinary science at the University, with allowance in certain cases of £26 per annum.

Hostels for the accommodation of students have been provided by the local School Council or in connexion with religious denominations at Ararat, Leongatha, and Sale, but it is stated that the attendance at Secondary Schools in country towns generally suffers from the lack of facilities for boarding.

(iii) Prior to the year 1912, *Queensland* did not possess any distinctly Secondary Schools under State control, but in February of that year High Schools were opened at Warwick, Gympie, Bundaberg, Mount Morgan, Mackay, and Charters Towers. Tuition at these schools is free, but students must pass a qualifying entrance examination. Three courses of study, General, Commercial, and Domestic, are provided. The General Course will lead up to the University, and students will be able to matriculate from the High Schools. In 1917 and 1920 High Schools were opened at Gatton and Roma respectively. High Schools ranking in all respects with those mentioned are also conducted at Brisbane Central Technical College and at the Technical Colleges at Toowoomba and Rockhampton, and "The Brisbane Junior High School" was opened in 1920. In smaller centres where an average of not less than 25 qualified pupils can be obtained, secondary tuition is provided at existing State Schools, and this has been arranged for at Herberton, Childers, Dalby, Pittsworth, Southport, Cairns, Wynnum Central, and Emerald. The enrolment at High Schools in 1920 was 1,936, and the daily attendance 1,270. There are, moreover, ten Grammar Schools—six for boys and four for girls—each of which was subsidised by the State to the extent of £750 per annum, and in addition received a payment of £250 per annum for providing five scholarships for State scholars. Owing to representations regarding increased cost of maintenance, the grants to the Grammar Schools for boys and girls in Brisbane were each raised to £2,000 in 1920, and in the case of the remainder of these Schools the grant was raised to £1,500 each. The Government also pays the fees of the State Scholarship holders in attendance at the Grammar Schools. The enrolment at the Grammar Schools in 1920 was 1,920, and the average attendance 1,595. Since the year 1909 these schools have been regularly examined by the Inspector-General of the Education Department.

Under the amended scheme of scholarships to Secondary Schools which came into force in 1914, all candidates who gained 50 per cent. of marks at the previous December examination were eligible for free scholarships tenable for three years at an approved Secondary School. Provision was made for board allowance of £30 per annum where necessary, and of £12 where the holder lived at home. In 1915 the tenure was altered to two years, with the proviso that, should the holder at the end of that period obtain an approved pass at the University Junior Examination, an extension scholarship of two years was granted, and, in addition, an extension at the end of the fourth year where an approved pass at the Senior University Examination was obtained. The extension scheme came into force in 1917. In 1918 the tenure was extended to two years and a half in order to afford better preparation for the work prescribed by the University for the Junior Public Examination.

As a result of the 1920 examinations, held in April, scholarships (extended to two years and six months) were awarded to 847 boys and 759 girls. Of the successful candidates 195 boys and 194 girls were granted the allowance of £12 per annum, and 95 boys and 107 girls received the allowance of £30.

Prior to the establishment of the Queensland University, three exhibitions per annum to approved Universities were granted. These have been replaced by twenty scholarships to the local University. Each scholarship is tenable for three years, and carries an allowance of £26 per annum if the holder lives at home and attends the University, or £52 per annum board allowance where necessary. In addition to these "open" scholarships, twenty "teacher" scholarships are granted to students who undertake to enter the teaching profession. These carry an allowance of £66 where the students live away from home, and £39 to those who live at home.

(iv) *South Australia.* Including the Adelaide High School, there were altogether twenty-one High Schools open in South Australia in 1920, with an enrolment of 2,360 students, and a staff of 122 teachers. In addition to giving secondary education, these institutions form a valuable source from which the Department can draw a supply of young teachers. Under existing regulations provision is made for the following

scholarships:—(i) Eight public exhibitions open to boys and girls who have been *bona fide* residents of South Australia for two years prior to the competitive examination. The exhibitions are tenable for three years at an approved school or college, carry free tuition and books, and an allowance of £22 per annum when the holder lives away from home. (ii) Forty exhibitions, tenable for three years at an approved school or college are open to competition by children under 13 years of age in attendance at State Primary Schools. (iii) Eight senior exhibitions, worth £40 per annum, and four of the value of £20, are tenable at the Adelaide High School or other approved Secondary School, and are open to pupils of any Secondary School. (iv) Twelve junior exhibitions, eight of £40 and four of £20, tenable for two years at any approved Secondary School, are reserved for pupils of Secondary Schools within a radius of 10 miles of the General Post Office, Adelaide. (v) Twelve Government bursaries, of which six are reserved for pupils of the High Schools. These are tenable at the University, and the holder receives £20 per annum and free tuition. (vi) The Government provides £180 per annum to assist students who are unable to attend the University during the day. Each studentship is limited to £10 for science students, and £7 for arts students.

(v) *Western Australia.* In 1920, there were two schools providing a course up to the leaving certificate standard—the Perth Modern School and the Eastern Goldfields High School—and four District High Schools, at Northam, Geraldton, Bunbury and Albany, providing a three years' course up to the junior certificate standard, although three of them have small upper classes working for the leaving certificate. In addition, there are "Central" Schools in which the upper classes are collected from various contributory schools in the surrounding district. These supply (a) a professional course lasting three years leading to the junior certificate of the Public Examination Board. (In the Perth Central Schools classes leading up to the Leaving Certificate and Matriculation, thus covering the High School course, have also been established). (b) A Commercial Course of three years. (c) Industrial Course lasting two years. (d) A Domestic Course of two years for girls. Altogether 2,819 pupils were taking these courses, and if to this number the 670 children enrolled in the Commercial and Professional Courses at the large country towns be added, the total enrolments amount to 3,489. The Perth Modern School and the Eastern Goldfields High School had an enrolment in 1920 of 364 and 159 students respectively. Extension of the opportunity to obtain secondary education in country districts has been greatly appreciated, and the enrolments at the four District High Schools varied from 83 at Geraldton to 157 at Bunbury. The science courses in these schools are designed to aid in the practical study of agriculture. Entrants to State secondary schools must have passed an examination identical with that for Secondary School scholarships, and boarding allowance up to £30 per annum is provided where necessary. Continuation classes were inaugurated in 1911, and were attended at 24 centres in 1920 by about 2,800 pupils. The classes are intended to provide some measure of higher education to those who leave school as soon as they reach the compulsory age of 14 years. Admission to these classes is free, but pupils must attend regularly three evenings a week. Evening Schools are held in various parts of the State, but the work carried on is mainly primary. Junior and senior exhibitions were abolished in 1914 and provision made for 10 University exhibitions, each tenable for three years at the University of Western Australia, and valued at £40 per annum for students living at home and £60 in the case of those living away from home. Fifty scholarships tenable for three years (with possibility of extension to five years) at approved Secondary Schools are annually offered for boys and girls attending Government or other efficient schools. Ten carry an allowance of £20 per annum, and the remainder entitle the holders to receive a grant for books and travelling expenses. Boarding allowance up to £30 per annum may also be granted where necessary. Thirty-three bursaries of the value of £5 each tenable for two years were also granted in 1920. Scholarships to enable children from country districts to attend at District High Schools or the Narrogin School of Agriculture were inaugurated in 1917. Only those children who must live away from home are eligible, and the tenure may in some cases be extended to five years. The scholarships carry an allowance of £30 per annum. During 1920, 40 District High School scholarships, and 7 tenable at the Narrogin School of Agriculture were awarded. Thirteen scholarships also were awarded in 1920 to children of fallen or disabled soldiers. The scholarships are tenable for three years, and, where necessary, carry an allowance of £30 per annum.

(vi) *Tasmania*. Up to the year 1912 the Department confined its efforts to the provision of primary education for the school children in Tasmania. In 1911, however, super-primary classes were formed in the larger schools, with an enrolment in 1911 of 200, and in 1912 of 400 pupils. It was recognised, however, that the previously existing scheme of scholarships and exhibitions was inadequate to meet the demands for higher education. High Schools were therefore opened in January, 1913, at Hobart and Launceston, and intermediate High Schools were opened in 1915 at West Devonport and Burnie. In 1919 the school at Devonport was given the status of a full time High School. The enrolment and average attendance at the four High Schools in 1920 were 935 and 886 respectively. These provide for five classes of pupils—(i) Those who desire to become teachers; (ii) University students; (iii) Commercial; (iv) Mechanics; (v) Home duties (girls). The enrolment in 1920 was 1,060. It is proposed to grant a leaving certificate at the end of a four years' course. The Bursaries Act of 1915 provides for 30 junior and 20 senior bursaries tenable for two years at an approved State School or registered Secondary School. They are valued at £2 per annum for a State School and £12 at a Secondary School, in addition to satisfactory boarding and travelling allowance where required. Four-fifths of the bursaries are awarded to country children. The Tasmanian Education Department scholarship is open for competition to High School pupils under the age of 19 years. The scholarship is valued at £20 per annum, with an allowance of £40 if the student lives away from home while attending the approved University course. A Veterinary Science Scholarship was established in 1918, for competition amongst boys under 19 years of age. It is tenable for one year at the University of Tasmania (value £20 or £60), and at either the University of Melbourne or Sydney for the three succeeding years (value £120 per annum). During 1920 the Board awarded 7 junior city, 29 junior country, 6 senior city, and 11 senior country bursaries.

8. *Agricultural Training in State Schools*.—The question of agricultural training in ordinary schools has received considerable attention in *New South Wales*. In 1905 a teacher of school agriculture was appointed to visit schools and districts for the purpose of giving instruction to teachers and scholars in the subject, the officer selected possessing the qualifications of a thorough acquaintance with agricultural work as well as school methods. The Education Department makes grants of seeds of various kinds to schools having gardens, and in some instances has installed windmill plants to provide an adequate water supply. Special courses in agriculture are provided at certain country centres. Under the direction of a capable head master, a college has also been opened at Hurlstone, near Sydney, at which practical lessons are given in elementary agriculture, and the institution also serves as a stepping-stone to the Hawkesbury Agricultural College. Scholarships are available to students of the Hurlstone Agricultural High School as it is now called, and these scholarships entitle the holder to a two years' free course at the Hawkesbury institution, with a grant of £1 10s. per annum for text books. The Department has also organized Rural Camp Schools for the purpose of giving teachers and scholars first-hand knowledge of country industries, and has had prepared for distribution to schools a comprehensive manual entitled "The Farm and its Industries."

In 1920 a Supervisor of Agriculture was appointed, and it was decided to revise the methods of teaching the subject with a view to the adoption of a more forward policy.

The subject of Agricultural Colleges and Experimental Farms is dealt with in the section relating to Agriculture. (See page 293.)

In *Victoria*, what are termed Agricultural High Schools have been established at Ballarat, Colac, Leongatha, Mansfield, Mildura, Sale, Shepparton, Wangaratta, Warragul, and Warrnambool. Pupils must be at least fourteen years of age, and have passed beyond the curriculum of the elementary school, or else be able to afford satisfactory proof that they are qualified to profit by the instruction offered. The schools are practically secondary schools with an agricultural bias, and form a link between the rural school and the agricultural college. They are also used as a preliminary stage in the education of boys and girls who wish to become teachers and eventually graduate in the State Training College and the University. At some of the schools short courses in agriculture have been instituted for farmers' sons who have left school. A local council is appointed for each school, and exercises a general oversight over its operations. The experimental plots at these schools have aroused much interest among the farmers from

the surrounding districts. A Supervisor of Agriculture reports and gives advice on the teaching of agriculture in the State Schools. A fair number of teachers have gained diplomas in agriculture, and are capable of giving practical instruction at the High Schools. Schools of Agriculture are conducted by the Agricultural Department at the State Research Farm, Werribee. Teachers in the wheat-growing districts are also instructed for short periods by the organizing Inspector of Agriculture at the University, and their services are utilised as leaders or group supervisors in their districts. The elementary principles of agriculture are taught in a large number of State Schools. Progress has been made in the direction of establishing agricultural clubs and home-project organizations in connexion with the schools. A Horticultural Society has been established, with a number of schools in affiliation, while practical help in school gardening is afforded by the Departmental supervisor. The Society has a nursery and distributing centre for plants and seeds at Oakleigh, and sub-nurseries have been established at various schools.

In *Queensland*, the Government provides a small grant to encourage the study of agriculture, horticulture, and kindred subjects in the State Schools, while a departmental teacher of agriculture visits the schools and gives assistance in agricultural, horticultural, and nature study work. Some excellent experimental work has been carried out at a few of the schools, while gardens have been established wherever circumstances permitted. Short courses of instruction for teachers have been instituted at the Gatton College. A large number of teachers have gained a practical knowledge of milk and cream testing, and the subject is now added to the programme of instruction in several of the dairying districts. The practical advice and help given has resulted in many instances in marked improvement in the dairy herds. At Nambour, a Rural School, the first of its type, was opened early in 1917. In addition to the ordinary subjects of the curriculum this school provides for instruction in farming, fruit growing, dairying, etc., with dressmaking, millinery and cookery for girls, and woodwork, leatherwork, and tinsmithing for boys. Training in business methods, shorthand and typewriting is also available. In view of the success of this institution schools of somewhat similar type have been established at Boonah, Marburg, Gracemere, Geham, and it is proposed to add to their number when funds permit.

In *South Australia*, the Public Schools' Floral and Industrial Society, founded in 1880, holds annual exhibitions of school work from all parts of the State. In addition, it has for some years undertaken the distribution of flower seeds among school children at a very cheap rate, and has thus fostered the love of horticulture with remarkable success. A special instructor has been appointed to give assistance to teachers desirous of making their school gardens aid in nature study work. Aid is given by personal visits as well as by correspondence, and the holding of vacation Summer Schools. Teachers in training receive instruction in Nature knowledge and the art of conducting Nature Studies with children. A seed wheat competition amongst school children inaugurated in 1911 proved very successful, a second, which was commenced in 1916, concluded in 1920, and a third in 1921. In 1919 two of the competitors who have entered on the work of wheat breeding produced wheat of such quality that they were unable to supply the orders for seed grain received from South Australia, as well as from other States.

In *Western Australia*, an advisory teacher of nature study visits the schools and gives advice in regard to proper methods in horticulture and experimental agricultural work. The number and usefulness of the gardens and experimental crops attached to State Schools shew marked improvement each year. Special attention is being given to the needs of the Country Schools, and as far as possible the instruction is given a practical bias. In some districts definite projects are undertaken of importance to a rural community, i.e., vegetable growing, bee-keeping, and pig and poultry keeping. The boys are also trained in useful manual work, and the girls, wherever possible, are taught simple cookery, and the drying and preserving of fruit and vegetables. Early in 1914 a school was opened on the Narrogin State Farm. The students are taken directly from the primary schools, and the course of instruction lasts for two years. On its completion students are qualified to enter on the diploma course at the University. The school is to be brought under the control of the Education Department in 1921, and has so justified its existence that it cannot accommodate all the applicants for admission. Provision has been made for practical work in agriculture at the new High School at Northam.

In *Tasmania*, the organizing teacher of nature study visits and advises the teachers at the State Schools, and also gives addresses and model lessons at the schools of instruction. Considerable success has attended the establishment of classes in Hobart for instruction in apple-grading and packing. Similar classes have been formed at Huonville and Franklin.

9. **Teachers in State Schools.**—The distribution of the teaching staff in the State Schools during the year 1920, including teachers of needlework, was as follows :—

TEACHING STAFF IN STATE SCHOOLS, 1920.

(COMMONWEALTH.)

State.	Principal Teachers.		Assistants.		Pupil or Junior Teachers.		Sewing Mis- tresses.	Total.		
	Males.	Fem.	Males.	Fem.	Males.	Fem.		Males.	Fem.	Total.
New South Wales	2,147	1,210	1,558	4,019	2	97	171	3,707	5,497	9,204
Victoria	1,749	1,322	386	1,511	234	1,477	312	2,369	4,622	6,991
Queensland	857	768	624	1,460	205	435	..	1,686	2,663	4,349
South Australia	383	581	254	835	178	485	118	815	2,019	2,834
Western Australia	332	353	135	707	26	125	58	493	1,243	1,736
Tasmania	178	238	58	271	51	251	5	287	815	1,102
Northern Territory	2	8	..	4	..	..	..	2	7	9
Commonwealth ..	5,648	4,525	3,015	8,807	696	2,870	664	9,359	16,866	26,225

The figures for assistants include students in training.

It will be observed that there is a fairly large number of junior teachers, or pupil teachers, as they are called in some of the States. The pupil teachers will, however, in time disappear, and their places will be filled by young people who have undergone a course of training in schools specially provided for the purpose. Allusion to the methods of training will be found in the next sub-section.

In New South Wales attention has been drawn to the difficulty of securing an adequate supply of teachers, particularly male teachers for small schools in out-back districts.

10. **Training Colleges.**—The development of the training systems of the various States has been alluded to at some length in earlier issues of the Year Book. The present position is as follows :—

(i) *New South Wales.* During 1920, the total number of students in training was 849, of whom 315 were taking the twelve months' course at Hereford House for rural teachers or assistants, and the balance the various courses up to five years, and the special courses arranged in accordance with departmental requirements. Practically all accessible metropolitan schools are used as practice schools for giving training college students opportunity to acquire practical skill in teaching. At the college, a complete set of Montessori apparatus has been prepared for demonstration work in the Montessori principles, and one of the College staff was a few years ago sent to Italy in order to gain first-hand knowledge of the possibilities of the scheme. Opportunities are also afforded to other members of the teaching staff to visit foreign countries on study leave. The Principal of the Training College is also Professor of Education at the Sydney University. A new Teachers' College within the University Grounds has been partly completed, and portion of the building was occupied in 1919. Up to the year 1913 the limits of accommodation at the Teachers' College were responsible for the employment of a number of untrained junior assistants, but it is now provided that no teacher enters the service without at least six months' professional training. Schools of instruction for teachers are held each year, the subjects chosen being military drill, swimming, physical training, first-aid work, manual training work, etc., and lectures are given to teachers in rural

districts by members of the Teachers' College staff. Hostels for students in training and for the accommodation of High School pupils have been established at various centres in the State.

Recently the Department sent a lady teacher to Harvard University, America, for special study of the problem of the education of sub-normal children, and on her return it is hoped to organize a definite scheme for dealing with this difficult subject.

(ii) *Victoria*. During recent years the educational and professional attainments of the general body of teachers in Victoria have steadily improved. Prior to the establishment of the High Schools, the pupil or junior teachers were recruited from the ranks of those who had obtained the Merit Certificate in the eighth grade of the elementary schools, and the acquirement of the necessary literary qualifications for promotion was greatly hindered by the circumstance that they were engaged in teaching for the greater portion of the day. Under present conditions, candidates spend three or four years in a High School exclusively in study, and consequently enter on their professional duties with a better mental and physical equipment. On receiving promotion in rural schools as sixth grade teachers, they may join the correspondence classes of the Melbourne High School and receive tuition for the higher examinations. At present about 600 rural teachers are on the correspondence class rolls, while evening and Saturday classes for junior teachers are also held at the school. A number of High School pupils after serving as junior teachers for a year are awarded studentships at the Training College, and competition has been so keen that it has been found possible to exact the standard of the Senior Public Examination for these studentships. The present Training College dates back to 1874, but during the retrenchment period, viz., from 1893 to 1900, it was closed. The institution was reopened in February, 1900, with an enrolment of fifty-seven students. During the year 1920, the students in training numbered 228, of whom 138 were women. A Training College Hostel has been established, and a Correspondence class formed for country teachers desirous of qualifying for the Infant Teacher's Certificate. The students at the Hostel receive training in domestic economy. Three city and six country practising schools are attached to the Training College, and four infant rooms with attached kindergartens have been specially equipped for the training of infant teachers. The University High School gives secondary teaching practice to both departmental and private students. A remodelled system of training came into force in 1914, providing, amongst other things, for the alteration of the name "Training College" to "Teachers' College," and for the classification of students into three groups, i.e., those training for secondary teachers' certificate, for sub-primary teachers, and for primary teachers.

Twenty teachers are nominated annually for free attendance at the University lectures for the diploma of education.

The Teachers' College conducts a Correspondence class for women teachers in the country studying for the Infant Teacher's Certificate.

(iii) *Queensland*. In connexion with the Teachers' Training College opened in Brisbane in 1914, the following scheme has been evolved :—Twenty-five special Teacher scholarships to the University, each with a currency of two years, are to be awarded annually. Living allowances at the rate of £52 per annum and £26 per annum respectively are provided, the former being paid to students living away from home. The University is to provide an Education group of subjects, including Logic, Psychology, and Education. Ten of the scholarships may be carried on for a third year, and five for a fourth year. Practical training is entrusted to a Training Master appointed by the Department. Those who attend the two years' course will be appointed to the Primary Schools, and the graduates from the three and four years' course will be available for High Schools and Secondary Schools. Short courses of training have been instituted for teachers to take charge of small schools, and arrangements have been made to allow an approved number of teachers already in charge of such small schools to obtain the benefit of the training. During 1920 there were in training 40 short course students and 29 holders of teachers' scholarships. In 1920 the method of selecting recruits to the teaching service was revised. Prior to this year the "pupil teachers" were chosen from the senior pupils in the primary schools, and appointed on probation until they had passed

an examination and obtained a certificate of aptitude in teaching. After a period of four years they were admitted as classified teachers. Under the new scheme it has been decided where Secondary Schools have been established to limit the selection to boys and girls who have obtained an approved pass at the University junior public examination. As a commencement ten male and ten female teaching scholarships have been granted for a course of eighteen months at the Teachers' Training College. The course will be extended to two and a half years in the case of selected candidates, who will be expected to pass an examination for admission to the classified ranks of the service. A second avenue of approach will be provided by admitting student teachers who have qualified by passing the approved examination, the training to be given by the head masters of the schools at which they serve. At present the method outlined above cannot be adopted throughout the State, and in the less populous districts the appointment of pupil teachers by nomination of head teachers must continue. The schools for infants at Kangaroo Point and Rockhampton have been specially staffed and equipped for training Kindergarten teachers, and Kindergarten methods have been introduced into most of the larger schools. Teachers of small schools are also greatly helped by the inspectors' practical and theoretical instruction in the various districts, while the Central Technical College gives correspondence lessons to small-school teachers desirous of passing the Class III. examination. Schools of instruction for the untrained teachers of small schools are conducted by the inspectors in their respective districts.

(iv) *South Australia.* In 1920 the scheme for the training of teachers was remodelled. The new system is based on three fundamental principles. (1) That the candidate should have completed his ordinary education—at least up to the standard of the Junior Public Examination—before entering on the professional course. (2) That he should complete his professional course before being permitted to teach. (3) That in order to secure uniformity, the various courses should be controlled by one person, instead of several, as was formerly the case. The remodelled courses came into operation in January, 1921, and are arranged to give the necessary academic and professional training as follows:—
 (a) Short Course (one year) for the less important positions in primary schools and for teachers of Class VII. schools. (b) Primary Course (two years) for the more important positions in primary schools. (c) Kindergarten and Sub-Primary Course (two years) for positions as infant teachers. (d) Secondary Course (three to four years) for High School teachers. (e) Commercial Course (two years) for teachers of Commercial Subjects. (f) Domestic Arts Course (two years) for teachers of Domestic Arts. (g) Woodwork Course (one year) for teachers of woodwork. The total number of students is 296. Practical work in teaching is carried out at three Practising Schools under specially selected teachers of method.

In order to provide an adequate supply of qualified students, provision is made for the award of 150 scholarships annually, tenable at a High School. These scholarships entitle the holder to one or two years' education at a High School beyond the Junior Public stage, with an allowance of £40 per annum for boys and £30 for girls, and a boarding allowance of £20 per annum if students live away from home.

The new scheme of inspection, while providing for a measure of examination to test progress in fundamentals, gives the inspector a greater opportunity to estimate the general value of the teacher's work and to give advice and assistance where needed.

Special evening or Saturday morning classes of instruction are conducted by the inspectors in their districts, while during 1920 a School of Instruction was conducted and attended by fifteen teachers, who were allowed to close their schools for a week in order to attend at the centre chosen.

(v) *Western Australia.* A Training College for teachers was opened at Claremont in 1902. The original building provided accommodation for sixty students, but extensions were opened in 1908, and the number in training in 1920 was 151. Of the long course students, 34 were in the first year, 38 in the second year, and three in the third year. The remaining 76 were taking the one year's course for teachers of country schools, except two who were taking a special course. A fair proportion of the full course students attend lectures at the University, and some remain for a third year to complete degree

work. Special practising schools have been established for the proper training in teaching and managing the smaller country schools. Three classes of students are admitted to the full course—(i) from State or private secondary schools; (ii) monitors from departmental schools; (iii) ordinary teachers from the departmental schools. The standard of education required on entering is the school-leaving or matriculation certificate, but a special examination is held for candidates possessing neither. The course is both academic and practical, the former being co-ordinated with the University. As a help in the practical work, there is an adjunct school attached to the college, and several practising schools, two of which are for infants only. An advisory teacher visits the small country schools to give practical help and advice. At the Claremont Infants' School a room has been set apart for work on Montessori lines. During 1919, in addition to short courses at the Training College, a school of instruction for teachers of small schools was held at Toodyay. Arrangements have been made for the inspectors to carry out experimental work in the direction of affording opportunities for teachers and children in rural districts to acquire useful information in connexion with nature study, agriculture, and various industrial and art subjects. Two schools of instruction for teachers in cadet training were held in 1919, and these were attended by 31 teachers.

(vi) *Tasmania.* During 1917 the schemes for the training of teachers were recast and grouped in four divisions:—(1) A short course to supply the professional training required for the less important positions in the primary schools and for teachers of the smaller provisional and Sixth Class schools. The course lasts six months. (2) Training of infant teachers. (3) Training for positions in the larger primary schools. (4) Training of high school teachers. Practical training for the various classes is given in well-equipped practising schools and in model small schools. The inspectors hold schools of instruction for teachers of small schools, and teachers of moderate attainments are also helped by the Correspondence School. The enrolment at the Training College in 1920 numbered 67.

11. School Savings Banks.—Returns shew that these institutions are in existence in three States. In New South Wales, there were 842 banks at the end of 1920, the deposits amounting to £58,811, and withdrawals to £55,880. Since the establishment of the banks in 1887, deposits totalled £754,645, and withdrawals £736,818. Of the latter sum £152,187 was placed to the children's accounts in Government Savings Banks. In South Australia, 552 schools had 28,634 depositors, with £28,525 to their credit; and in Western Australia, there were 454 school banks, with 33,587 depositors with £47,906 to their credit.

12. Expenditure on State Schools.—The net expenditure on State education in all grades of schools, excepting technical schools, during 1901 and for the five years ended 1920 is shewn below. The figures do not include expenditure on buildings, which is shewn separately in a subsequent table.

EXPENDITURE ON MAINTENANCE, STATE SCHOOLS, 1901 AND 1916 TO 1920.

(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
1901 ..	623,734	656,907	256,245	152,006	89,694	37,710	..	1,816,296
1916 ..	1,534,186	1,032,708	484,500	268,399	305,130	111,140	1,956	3,738,019
1917 ..	1,662,658	1,033,876	562,418	295,261	319,954	115,547	1,594	3,991,308
1918 ..	1,748,221	1,098,060	567,296	308,423	336,852	125,572	1,668	4,186,092
1919 ..	1,971,209	1,127,962	618,007	342,907	348,694	142,097	2,027	4,552,903
1920 ..	2,668,060	1,325,149	917,314	403,768	394,931	182,822	2,763	5,894,807

The expenditure per head of average attendance for each of the years given above will be found in the succeeding table :—

COST PER HEAD OF AVERAGE ATTENDANCE, STATE SCHOOLS, 1901 AND 1916 TO 1920.

(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1901	4 0 10	4 7 0	3 12 9	3 9 5	5 9 3	2 12 11	..	4 0 8
1916	7 13 0	6 3 1	5 14 0	5 2 4	7 12 8	4 15 5	11 18 6	6 11 4
1917	7 9 10	6 3 5	6 7 5	5 4 0	7 15 11	4 15 1	8 11 5	6 13 0
1918	7 14 10	6 10 10	6 15 6	5 3 4	7 17 3	5 1 11	8 9 4	6 18 5
1919	9 5 2	6 9 10	6 13 6	5 14 10	7 19 2	5 13 4	10 19 2	7 9 9
1920	11 7 5	7 15 6	9 13 11	6 11 0	8 15 0	7 3 5	12 1 4	9 6 6

As the figures shew, the cost per head of average attendance in 1920 is considerably more than double that for 1901. This increase is due to the greatly enhanced cost of materials and equipment and to the higher salaries paid to the teaching staff largely to meet the increased cost of living and also to make the service more attractive. For New South Wales the expenditure on salaries rose from £1,589,000 in 1919 to £2,188,000 in 1920. In Queensland the increase is largely due to additional salaries and allowances—amounting to about £286,000—paid to teachers in consequence of awards of the Industrial Arbitration Court.

Expenditure on school buildings in each of the years quoted was as follows :—

EXPENDITURE ON STATE SCHOOL BUILDINGS, 1901 AND 1916 TO 1920.

(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
1901 ..	57,663	36,040	33,421	13,656	49,073	7,762	..	197,615
1916 ..	303,001	220,042	96,397	32,196	24,863	28,793	..	705,292
1917 ..	208,733	116,010	78,080	44,311	21,034	21,667	253	490,088
1918 ..	238,434	62,532	94,323	40,299	16,540	8,883	252	461,263
1919 ..	265,174	87,273	94,603	41,974	24,579	23,897	650	538,150
1920 ..	370,412	131,266	138,985	28,907	26,851	19,406	..	715,827

The net total cost during the year 1920 was as follows :—

NET TOTAL COST, STATE SCHOOL EDUCATION, 1920.

(COMMONWEALTH.)

Item.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Nor. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
Net cost of education, including buildings ..	3,038,472	1,456,415	1,056,299	432,675	421,782	202,228	2,763	6,610,634

The figures in this and the preceding tables refer to all grades of State schools (with the exception of technical schools), and include evening schools. Including buildings the net cost per scholar in average attendance for the whole of the State schools in the Commonwealth amounted in 1920 to £10 9s. 2d. as compared with £4 9s. 3d. in 1901.

§ 3. Private Schools.*

1. **Schools, Teachers, etc., in 1920.**—The following table shews the number of Private Schools, together with the teachers engaged therein, and the enrolment and average attendance in 1920 :—

PRIVATE SCHOOLS, 1920.

(COMMONWEALTH.)

State.	Schools.	Teachers.	Enrolment.	Average Attendance.
New South Wales	679	3,810	74,339	59,495
Victoria	486	1,991	(a)56,684	(b)48,000
Queensland	167	1,038	26,175	21,601
South Australia	167	755	16,140	11,520
Western Australia	128	502	12,151	10,517
Tasmania	71	317	6,555	4,912
Northern Territory	1	2	49	38
Commonwealth	1,699	8,415	192,093	156,083

(a) Individual scholars.

(b) Estimated.

The totals for New South Wales include returns from the Sydney Grammar School, which receives a yearly State subsidy of £1,500, and which, in 1920, had an enrolment of 622, and an average attendance of 579.

The figures for Queensland include the returns from Grammar Schools, of which there are ten—six for boys and four for girls, with an enrolment of 1,131 boys and 789 girls. These schools are governed by boards of trustees, partly nominated by Government, and partly by the subscribers to the funds. The trustees make regulations regarding the fees of scholars, the salaries of teachers, and generally for the management of the schools. Owing to increased cost of maintenance the grants by the Government were raised in 1920 to £2,000 each in the case of the Boys' and Girls' Grammar Schools in Brisbane, while the remaining schools each received £1,500. The total Government aid received in 1920 was £16,000, as compared with £9,755 in 1919. The Grammar Schools are inspected annually by the departmental Inspector-General.

2. **Growth of Private Schools.**—The enrolment and average attendance at Private Schools during 1891, 1901, and in each year of the period 1911 to 1920 are as follows :—

ENROLMENT AND ATTENDANCE AT PRIVATE SCHOOLS, 1891 TO 1920.

(COMMONWEALTH.)

Year.	Enrolment.	Average Attendance.	Year.	Enrolment.	Average Attendance.
1891	124,485	99,588	1915	172,957	144,804
1901	148,659	120,742	1916	177,650	146,380
1911	160,794	132,588	1917	177,126	144,409
1912	164,085	133,940	1918	190,999	151,590
1913	161,204	132,679	1919	193,115	145,630
1914	162,813	135,141	1920	192,093	156,083

* Private schools include all schools not wholly under State control. The term "private," though popularly applied, is of course a misnomer.

The small rate of increase in private school enrolment and attendance is due in a large measure to the development of the State educational systems, especially as regards the provision of secondary education. As compared with 1918, the figures for average attendance show a falling off in 1919 of about 6,000, the decrease being accounted for by the smaller attendance in New South Wales schools resultant on the influenza epidemic.

3. Registration of Private Schools.—Until recent years the various State Governments had comparatively little control over privately conducted schools. With the advance of modern educational thought the position is improving, but still leaves much to be desired. It is evident that without a thorough system of registration there will always be a difficulty in regard to enforcing the compulsory clauses of the various Education Acts. Moreover, advanced educational thought demands complete supervision, not only of curricula, but of all matters pertaining to school hygiene.

In New South Wales, under the provisions of the Bursary Endowment Act of 1912, non-State Schools are inspected by the departmental Inspector of Secondary Education for registration or renewal thereof. Under the compulsory clauses of the amending Public Instruction Act of 1916 children between the ages of 7 and 14 years must attend schools certified as efficient by the Minister. Provisional registration is granted to applicants pending inspection by Government officers. School proprietors must conform to prescribed conditions in regard to the hygiene, etc., of their buildings, and supply the requisite returns.

In Victoria, a registration scheme has been established under a special committee consisting of nine members of the Council of Education, and all Private Schools must be registered. The Minister of Education is also empowered to authorise the inspection of any school (other than a State School) in order to ascertain whether the instruction given is satisfactory. The inspector of registered schools has pointed out that the Registration Act has had the effect of improving the school buildings as well as the methods of instruction. Since 1914, the improvement of existing buildings has been enforced where necessary, while full requirements have been insisted on in the case of additions or new buildings.

In Queensland, with the exception of the Grammar Schools, which are now examined annually, there is practically no control over the private schools, beyond the fact that they may submit themselves to inspection if so desired. No provision is made under the Education Act for the furnishing of returns.

In South Australia there is no compulsory registration of schools or teachers, but all instruction must be given in the English language, and monthly and annual returns of attendance forwarded to the Department of Education.

In Western Australia, non-Government schools must be declared efficient by the Education Department if attendance at them is to be recognised as fulfilling the requirements of the law, and the school registers must be open to the inspection of the compulsory officers of the Department. Returns of attendance must be furnished monthly and quarterly.

In Tasmania all private schools must be registered with the Teachers and Schools Registration Board. Prior to registration by the Board teachers must produce evidence of fitness to teach. Annual returns of attendance are required.

4. German Schools in Australia.—The accompanying particulars in regard to German Schools in Australia have been extracted from information supplied by the State Education Departments.

New South Wales. In this State there are two private schools conducted by German teachers, and attended entirely by children of German descent. The schools are situated at Jindera, near Albury (32 pupils); and at Trungley Hall, near Temora (22 pupils). The schools are inspected by the departmental officers, and school work is conducted in English. The use of German as the language of instruction is not permitted in any school. Jindera and Trungley Hall have been gazetted "certified" schools under the provisions of the Public Instruction Amendment Act of 1916.

The scholars attending the following State schools consisted largely of children whose parents were known to be of German descent :—Burrumbuttock East, Gerogery Railway Station and Gerogery West, Hovell, Jindera, Lavington, Walkyrie, Walla Walla. Many of the scholars at these schools could speak German before they attended school.

Victoria. There are ten registered private Lutheran schools in Victoria, with an attendance of 355 pupils. In connexion with these schools it has been laid down by the Government that the German language is not to be employed in teaching, and books, charts, etc., in German are prohibited. Religious instruction in German is not permitted, and the syllabus generally must be on lines prescribed by the Education Department, and be such as will promote good citizenship and loyalty to the British Empire. There are no State German schools.

Queensland. There are now no German day schools in operation. In districts where German families form a considerable proportion of the population the children attend the State schools, and, in common with other children, are subject to the conditions imposed by the compulsory clauses of the State Education Act now in force.

South Australia. In the year 1916 there were 52 Lutheran schools in this State, practically all under the control of the Lutheran Church. In many of these schools the teaching was carried on in the German language, and English was hardly spoken at all. Religion as taught by the Lutheran Church formed an important part of the instruction. The Education Act of 1915 provided that teaching should be through the medium of the English language for at least four hours a day. The Education Amendment Act of 1916, however, provided that the Government should take over and carry on all Lutheran schools not earlier than 30th June, 1917, and not later than 31st December, 1917, and that no language but English should be spoken in the schools. The Act was put into force on the 1st July, 1917. With the exception of the Point Pass and Concordia Secondary Schools there are now no Lutheran schools in South Australia. Forty-nine Lutheran schools were closed on the 30th June, and 45 of these re-opened, 25 being absorbed into neighbouring public schools, while 20 were carried on in their own buildings with an English teacher.

Western Australia and Tasmania. There are no German schools in either of these States.

§ 4. Free Kindergartens.

The following information regarding Free Kindergartens in the Commonwealth has been compiled from particulars supplied by the principals of the chief institutions or the organizing secretary in each State, except in the case of Western Australia, the details for which were furnished by the Education Department.

FREE KINDERGARTENS IN THE COMMONWEALTH, 1921.

State.	No. of Schools.	Average Attendance.	Permanent Instructors.	Student Teachers.	Voluntary Assistants.
New South Wales (Sydney)	11	603	18	77	19
Victoria (Melbourne) ..	26	1,473	51	39	420
(Ballarat) ..	1	31	2	..	8
Queensland (Brisbane) ..	6	173	22	16	6
South Australia (Adelaide)	8	285	10	27	..
Western Australia (Perth)	4	36	6	9	2
Tasmania (Hobart) ..	2	68	3	8	1
(Launceston) ..	2	90	1	5	11
Total ..	60	2,759	113	181	467

It must, of course, be distinctly understood that the information given above refers to institutions under private kindergarten unions or associations, and is exclusive of the kindergarten branches in the Government schools of the various States.

§ 5. Universities.

1. **Origin and Development.**—The history of the foundation and progress of the four then existing Australian Universities was traced at some length in Year Books I. and II. In the present volume space will permit of only a very brief reference to the subject.

(i) *University of Sydney.* The Act of Incorporation of the University of Sydney received Royal Assent on the 1st October, 1850, and the first Senate was appointed on the 24th December of that year. The first matriculation examination was held in October, 1852, when 24 candidates passed the required test, and the formal inauguration ceremony took place on the 11th October of the same year. A Royal Charter was granted to the University on the 27th February, 1858. Women students were admitted in 1881. The passing of the University (Amendment) Act of 1912 marks an important epoch in the development of the educational system of New South Wales. The Act aims at placing the University in a more effective position as the culminating point in a thoroughly co-ordinated system of State education, and it is claimed that the passing of this measure makes the educational system—from the Primary Schools through the Secondary Schools to the Technical Colleges or to the University—form a progressive and continuous whole. Under the new Act the Constitution of the Senate was radically changed, and this body now consists of—four Fellows appointed by the Governor, one elected by members of the Legislative Council, one elected by members of the Legislative Assembly, five representatives of the University teaching staff, ten elected by graduates of the University, and three elected by the aforesaid Fellows. The professorial representatives hold office for two years, and the other Fellows for five years. In addition it was provided that in view of their distinguished services, the late Chancellor, Sir Normand MacLaurin, and the Vice-Chancellor, Judge Backhouse, should each during his life be a Fellow in addition to the ten Fellows elected by the graduates. The second part of the Act contains a feature of outstanding importance, in that it provides for the allotment of exhibitions in the proportion of 1 for every 500 of the population of New South Wales between the ages of 17 and 20, or in such other ratio as may be determined by Parliament. These exhibitions, which carry exemption from all fees, are not restricted to any particular faculty in the University, and are principally allotted in order of merit as shewn by examinations for leaving certificates at the State schools. Pupils of registered Secondary Private Schools are also eligible for leaving certificates on the same conditions as those of the State Schools. To gain a leaving certificate a candidate must have satisfactorily completed an approved four years' course of study. Five per cent. of the total number of exhibitions allotted in any year are available for successful candidates at the written examination, even though they be ineligible for a leaving certificate. At the inception of the University there were only three professorships. The present staff consists of 26 professors, including the Director of Military Science, 6 assistant professors, and 156 lecturers and demonstrators. There are in addition, various honorary lecturers and demonstrators, as well as 82 miscellaneous assistants in laboratories, and 3 curators of museums.

(ii) *University of Melbourne.* This institution was established by Act of Parliament assented to on the 22nd January, 1853, and its first council was appointed on the 11th April of that year. The foundation stone of the main building was laid on the 3rd July, 1854, and the University was formally inaugurated on the 13th April, 1855. By Royal Letters Patent, issued in 1859, its degrees are, like those of the Sydney institution, declared of equal status with those of any other University in the British Empire. Women students attended lectures for the first time in 1881. The University, which began in 1855 with schools of Arts and Laws, has now a staff of 23 professors, 76 lecturers and demonstrators, and 133 various assistants. The Conservatorium of Music has a staff numbering 40.

(iii) *University of Adelaide.* This University was established by Act of Parliament in 1874. Its origin and progress were largely due to the munificence of the late Sir Walter Watson Hughes and Sir Thomas Elder, G.C.M.G., the total gifts of the latter amounting to over £100,000. The academical work of the institution was commenced in March, 1876, when eight matriculated and fifty-two non-graduating students attended lectures.

The foundation stone of the University buildings was laid on the 30th July, 1879, and the buildings were opened in April, 1882. In 1881, by Royal Letters Patent, the degrees granted by the institution were recognised as of equal distinction with those of any University in the British Empire. The Elder Conservatorium of Music was opened in 1898. Power was given by Act of Parliament in 1880 to grant degrees to women. At first there were only four professorships in the University, whereas the present staff consists of 14 professors, 73 lecturers and demonstrators, and 42 miscellaneous assistants, while the staff at the Conservatorium, not included in the foregoing figures, numbers 18.

(iv) *University of Tasmania.* The Act to establish the University of Tasmania (Hobart) was assented to on the 5th of December, 1889. At the present time the institution, which is small but efficient, possesses a staff of 7 professors, 12 independent lecturers, and 4 assistant lecturers and demonstrators. Under Statute dated 13th April, 1905, the Zeehan School of Mines and Metallurgy was affiliated to the University, while the School of Mines and Industries at Mount Lyell was affiliated on the 4th November, 1915. Tutorial classes have been arranged at Hobart and Launceston, and Extension Committees have been formed in various country centres.

(v) *University of Queensland.* The Act to establish the University of Queensland was passed in 1909, and the first Senate was appointed on the 14th April, 1910. The University was opened on the 14th March, 1911, when 60 students were matriculated. Provision has been made for a Correspondence Study department in connexion with the institution, and at the request of the Brisbane branch of the Workers' Educational Association weekly lectures are given in History and Economics. At the present time there are 8 professors, with 10 independent lecturers, 10 assistant lecturers and demonstrators, and 2 miscellaneous assistants. The Correspondence department is under the control of a director and assistant. University extension lectures are delivered at important country centres.

(vi) *University of Western Australia.* The University of Western Australia was established under an Act which received Royal assent on the 16th February, 1911, and the first Senate was appointed on the 13th February, 1912. There are now 10 professors, in addition to 19 lecturers and demonstrators and 16 miscellaneous assistants. The Chair of Agriculture was endowed by Sir Winthrop Hackett. Students of the Perth Technical School and the Kalgoorlie School of Mines are admitted to the first year examinations in certain subjects provided they have matriculated. The institution was opened in March, 1913.

2. *Teachers and Students of Universities.*—The following table shews the number of professors and lecturers and the students in attendance at each of the State Universities during the year 1920 :—

UNIVERSITIES.—TEACHERS AND STUDENTS, 1920.

University.	Professors.	Lecturers and Demonstrators.	Students attending Lectures.		
			Matriculated.	Non-matriculated.	Total.
Sydney	32	133	2,629	768	3,397
Melbourne	23	76	..	..	2,366(a)
Adelaide	14	73	774	526	1,300(b)
Tasmania (Hobart) ..	7	16	125	54	179
Queensland (Brisbane) ..	8	20	245	46	291
Western Australia (Perth) ..	10	19	318	14	332

(a) Exclusive of 164 music students.

(b) Exclusive of 528 music students.

Students at the Conservatorium of Music have been excluded in the case of Melbourne and Adelaide. The Conservatorium in Sydney, while attached to the Education Department, is not under the control of the University.

3. **University Revenues.**—The income of the Universities from all sources during the year 1920 was as follows:—

UNIVERSITIES.—REVENUE, 1920.

University.	Government Grants.	Fees.	Other.	Total.
	£	£	£	£
Sydney	83,478	33,324	50,328	167,130
Melbourne	37,542	67,375	12,307	117,224
Adelaide	24,577	18,137	6,704	49,418
Tasmania (Hobart)	11,215	2,640	937	14,792
Queensland (Brisbane)	16,400	6,650	20,610	43,660
Western Australia (Perth)	14,248	2,294	2,847	19,389

The column "Other" includes the receipts from private foundations. The extent to which the Universities have benefited by private munificence will be apparent from the following table:—

PRINCIPAL PRIVATE BENEFACTIONS TO AUSTRALIAN UNIVERSITIES.

University of Sydney.		University of Melbourne.		University of Adelaide.	
Donor.	Amount.	Donor.	Amount.	Donor.	Amount.
	£		£		£
J. H. Challis ..	276,750	Sir Samuel Wilson ..	30,000	Sir Thos. Elder ..	98,760
Sir P. N. Russell ..	100,000	James Stewart ..	25,624	R. Barr Smith ..	
Thos. Fisher ..	30,000	Hon. Francis Ormond ..	20,000	and family ..	21,150
Edwin Dalton ..	8,000	John Hastie ..	19,140	Sir W. Hughes ..	20,000
Hugh Dixon ..	8,050	Robert Dixon ..	10,837	Hon. J. H. Angas ..	10,000
Hon. Sir W. Macleay ..	6,000	John Dixon Wyse-		Other donations ..	29,625
Mrs. Hovell ..	6,000	laskie ..	8,400		
Thos. Walker ..	6,200	David Kay ..	5,764		
Other donations ..	60,218	Cuming, Smith & Co.			
		Ltd. ..	5,250		
		Subscribers, Ormond			
		Exhibition in Music	5,217		
		Mrs. F. Knight ..	5,000		
		Henry Dwight ..	5,000		
		Wm. Thos. Mollison ..	5,000		
		Other donations ..	88,973		
Total	£501,218	Total	£ 234,205	Total	£ 179,535

The figures quoted above for the Sydney University relate to actual cash, and are exclusive of the munificent bequest by the late Hon. Sir Samuel McCaughey, M.L.C., of property producing an annual income of £15,000 to be applied to the general purposes of the University.

In addition to the sum of £6,000 shewn above, the Hon. Sir W. Macleay also presented the Museum of Natural History to the University of Sydney. The column "Other Donations" for Melbourne University includes portion of the sum of £49,000 raised by special appeal in 1920.

The credit balances of some of the above endowments now amount to very considerable sums. For example, on the 31st December, 1920, the Challis Fund amounted to over £323,000, and the Fisher bequest to over £44,000. The cash balance at the end

of 1920 on account of all private foundations to Sydney University stood at £590,295. In the case of Melbourne University the Stewart fund on the 31st December, 1920, stood at £30,505, the Hastie at £19,262, and the Dixon fund at £15,423.

In addition to the above there were various other bequests to Sydney University—*e.g.*, collection of Egyptian antiquities, etc., by Sir Charles Nicholson, and Natural History collection by Mr. Geo. Masters, while the building for the Natural History Museum was given by Sir W. Macleay. Numerous prizes and scholarships have also been given to the various colleges. In Melbourne, the Hon. Francis Ormond's benefactions to Ormond College amounted to about £108,000. With a view to advancing the cause of education in agriculture, forestry and allied subjects, Mr. Peter Waite transferred to the Adelaide University in 1914 the whole of the valuable Urrbrae estate at Glen Osmond. The estate comprises 134 acres of land with a fine mansion. In 1915, he presented the estate of Claremont and part of Netherby, comprising 165 acres, adjoining Urrbrae, while in 1918 he transferred to the University 5,880 shares in a public company to provide funds to enable the University to utilize the land for the purposes intended. Private benefactions to the University of Tasmania and the University of Queensland amount to £4,000 and about £30,000 respectively. In connexion with the latter, the trustees of the Walter and Eliza Hall Trust have endowed fellowships in engineering, economic biology, and pure and applied chemistry. The trustees also provided a Veterinary Science Research Fellowship at Melbourne University. In Western Australia the chair of Agriculture was founded by an endowment of Sir Winthrop Hackett, first Chancellor of the University, who made available also an annual sum of £900 for the establishment of a Department of Agriculture.

Recently by bequest of the late Sir S. McCaughey a sum estimated at £400,000 accrued to the funds of Sydney University, while Queensland University will benefit to the extent of about £7,500 per annum.

4. University Extension.—Extension lectures were instituted at Sydney University in 1886, but under a Statute of the Senate, approved of in 1892, a Board was appointed, which was empowered from time to time to recommend to the Senate the names of suitable persons for giving courses of lectures, and to hold examinations in the subjects of the lectures. The Board receives and considers applications from country centres, and makes provision for engaging lecturers and managing the entire business connected with the various courses. The project has only met with fair success, no lectures having been given in some years, but lately there appears to be an awakening of interest in the matter. The Board also arranges for courses of lectures in other States. In 1920 provision was made for eleven courses of lectures at the University, and in various country districts.

Evening tutorial classes open to both matriculated and unmatriculated students have been established in various centres in accordance with the University Amendment Act of 1912. Fifty-one of these classes, attended by about 1,300 students, were in operation during 1920.

University extension lectures in Victoria date from the year 1891, when a Board was appointed by the Melbourne University for the purpose of appointing lecturers and holding classes and examinations at such places and in such subjects as it might think fit. Interest in University extension has varied in Victoria, the attendance at the various centres being estimated at 850 in 1920. The Board has made arrangements for giving advice by correspondence to country students in cultural subjects.

The Adelaide University has also instituted short courses of extension lectures in Arts and Science, to which students are admitted on payment of a nominal fee. Public intimation of these lectures is made from time to time during the session.

The University of Tasmania provides for courses of extension lectures at various centres. Tutorial classes in Economics, History, Philosophy, and Literature are conducted in Hobart, and a class in Economics has been formed at Launceston. Attendance at extension lectures in 1920 numbered 256.

As pointed out previously, a correspondence study department has been inaugurated in connexion with the University of Queensland in order to overcome, as far as possible, the difficulties of students who desire to benefit by University teaching, but who for various reasons are unable to attend the lectures. At present the work of this department is confined to the Arts course. Attendances in 1920 numbered 115.

In Western Australia provision has been made for the giving of courses of extension lectures in Perth and suburbs, and also—by arrangement with local committees—in country centres. The professor of agriculture visits the chief farming districts for the purpose of giving lectures to, and holding conferences with the primary producers. Special short courses for farmers are given at the University. Short courses of popular lectures are also given in the evening by various professors at the University.

5. Soldiers' Scholarships at British Universities.—A scheme was evolved under which men on active service with the military and naval forces of the Dominions might benefit by the facilities for special education afforded by British Universities and technological institutions. Funds were made available to allow selected disabled soldiers and sailors to commence work as soon as they were fit to take up their studies. The Earl of Selborne generously provided a number of scholarships, a large subscription was allotted from the Kitchener Memorial Fund, and the Rhodes' Trust set apart several scholarships, some of which were given to Australians. The scholarships were of the annual value of £150 to £250, and covered all expenses, including tuition fees and cost of living. They were granted with the proviso that those who held them would follow up in their future professions and occupations the line of study embraced in the scholarships. The South African Government offered twenty-five additional scholarships for South African soldier students.

6. Workers' Educational Association.—In 1913 Workers' Educational Associations were formed in all the States of the Commonwealth, and later in New Zealand. The movement has for its object the bringing of the University into closer relationship with the masses of the people and thereby providing for the higher education of the workers in civic subjects. The work of the Association is gaining in popularity year by year and the growth of the movement has been phenomenal. The Government of New South Wales at first granted the University of Sydney the sum of £1,000 to initiate a scheme for tutorial classes. There are now direct grants from all State Governments except Western Australia, and an additional University grant in New Zealand. The particulars of grants for classes are as follow:—New South Wales, £5,650, 51 classes; Victoria, £2,250, 18 classes; Tasmania, £2,105, 15 classes; South Australia, £1,600, 9 classes; Queensland, £1,000, 10 classes. The total number of students throughout Australia is approximately 4,000, the greater number of whom are taking three-year courses while working at their daily occupations. An analysis of these occupations showed that the great majority of the students were wage-earners. The principal subjects chosen in all States are Industrial History, Economics, Political Science, and Sociology, but there is an increasing number of classes in other subjects such as Modern History, Psychology, Philosophy, Literature, Physiology, and Biology. Each University co-operates with the W.E.A. in the formation of a joint committee for tutorial classes, which appoints tutors and generally supervises the work with the assistance of a University officer with the title of Director of Tutorial Classes. In addition to the longer and more serious courses, a great many preparatory classes, study circles, and summer schools are organised by the Association, numerous courses of public lectures are delivered, educational conferences promoted, and an extensive book service is spreading educational literature throughout the Commonwealth. A strong feature of the work of the Association is the organization of a number of country branches to carry facilities for higher education to districts in which these have hitherto been lacking. This work has been particularly successful in New South Wales, Victoria, and Tasmania. In New South Wales the Association organised an important representative conference on "Trade Unionism in Australia" in 1915, the report of which has been issued in book form. Another conference on the "Teaching of Sex Hygiene" was held in 1916, the report of which has passed through two large editions. A Commonwealth Conference held at Adelaide in 1918 resulted in the formation of a federal organisation now known as "The Workers' Educational Association of Australia." Its central office is in the Education Department, Melbourne. The Federal Council co-ordinates the activities of the W.E.A. in all States, and has inaugurated a series of publications on sociological and economic subjects. It also publishes "The Highway," a monthly magazine now in its fourth year, which contains notes on the movement and general discussions on educational work.

§ 6. Technical Education.

1. **General.**—Although provision has been made in some of the States in respect to many necessary branches of technical education, the total provision made would imply that this branch of education has not been regarded as of great importance. As will be seen later on, the expenditure on technical education for the whole of Australia is comparatively insignificant. The question of apprenticeship is referred to in the section dealing with "Manufacturing Industries."

2. **New South Wales.**—The present organization of technical education in this State dates from the year 1883, when a Technical Education Board was appointed as a result of suggestions made at the Technological Conference held in 1879. This Board continued its functions till November, 1889, when it was dissolved, and the work has thenceforward been carried on as a branch of the Public Instruction Department. The chief centre of activity is, of course, in Sydney, where the Technical College and Technological Museum are situated, the college having been opened for the reception of students early in 1892. Colleges were also erected in some of the chief country towns—at Maitland in 1890; Newcastle 1896; Bathurst 1898; Broken Hill 1898; Albury 1899; and Goulburn 1902. In other centres classes were established in various subjects whenever the prospects were sufficiently encouraging. Up to the year 1912 the provision for technical education is stated to have partaken more or less of the nature of successive accretions on the original humble beginnings, rather than to have aimed at development in accordance with a definite plan. With the systematisation of the other branches of education, the necessity for more effective organization of the technical side became imperative, and in 1913 a rearrangement was effected. Under the new conditions Trade Schools supersede the branch Technical Colleges, with the exception of those at Newcastle and Broken Hill. Entrance to the Trades Schools is conditional on a student being actively engaged in the trade concerned during the day and possessing a certain degree of preparatory knowledge. The latter qualification is assured by the possession of a certificate from a Commercial Superior Junior Technical School or an Evening Continuation Junior Technical School. The co-operation of both employers and employees has been sought and obtained, and while at first there was some diminution in the number attending the classes, this is counterbalanced by increased efficiency. At the beginning of 1913 a conference was held between the education authorities and leading employers and employees with a view to deciding on a scheme of organization of the system of technical education. Sub-conferences were held for each trade or group of trades. In view of the information received, the Director of Education submitted a scheme to the Minister, and the scheme was approved at the end of November. Under the new plan the instruction is given in two divisions—(1) Trade Courses; (2) Higher Technical Courses. Instruction in the trade courses will be really continuation trade instruction, *i.e.*, supplementary to actual workshop practice under an employer. Attempts to train youths to be tradesmen in the College have been abandoned, and only those actually engaged as apprentices or journeymen are admitted to the college classes. Entrance tests are prescribed so as to ensure that students admitted to the courses will possess sufficient preparatory knowledge to benefit by them, but journeymen desirous of improvement may join at any time. Advisory committees have been appointed for each trade or group of trades. The first two or three years' course of instruction is given in the Trade Schools, of which there are ten, and the last two or three years' at the Technical Colleges, of which there are three, one at Sydney, one at Newcastle, and one at Broken Hill. The higher courses embrace instruction in advanced trades work qualifying for the position of manager or foreman, but no attempt will be made to train for the professional standing. It is hoped, however, that the scheme will develop so that part of the graduates may proceed to the University. Admission to the higher courses will eventually be restricted to those who have either graduated in the Trade Schools of the Department, or who evidence possession of a similar standard of knowledge. In addition to the courses given in the Technical Colleges and Trades Schools, elementary instruction has been provided at various centres where there has been a demand for it, and provision has been made also for special courses of instruction by correspondence. A liberal scheme of scholarships has been provided for

students passing from the day or evening Junior Technical Schools or Domestic Science Schools, to the Trades and Science Schools, as well as scholarships to the University at the close of the diploma course.

As the existing accommodation both at the Central College and the suburban Trade Schools was found to be quite inadequate, a beginning was made in 1921 with the work of providing increased facilities for technical education in the metropolis by remodelling the premises formerly used as the Darlinghurst Gaol. When the work has been completed the East Sydney Technical College, as it is proposed to name the new institution, will be the largest of its kind in Australia.

At the State Aviation School, Richmond, established during the war, a number of students secured pilots' certificates in 1918 and were sent abroad on active service. During 1919, instruction was restricted to the training of mechanics. In 1920 the buildings, exclusive of machinery, were under offer to the Commonwealth Government. No instructional work was carried out, but the plant was maintained and some private repair work done. It is proposed, however, to establish a School of Aircraft Machinery and Design at the new College at East Sydney.

The table below gives some idea of the development of technical education in New South Wales during the five years 1916-20 :—

TECHNICAL EDUCATION, NEW SOUTH WALES, 1916 TO 1920.

Year.	Number of Classes.	Number of Enrolments.	Average Weekly Attendance.	Individual Students.	Number of Lecturers and Teachers.	Fees Received.
						£
1916 ..	529	14,188	10,077	7,720	321	9,989
1917 ..	544	15,065	11,072	8,401	354	9,354
1918 ..	572	15,986	12,156	8,717	369	9,422
1919 ..	557	14,580	10,949	7,827	379	9,416
1920 ..	638	18,119	13,808	9,258	406	12,701

At the beginning of 1913 the Sydney Technical High School and the Hurlstone Agricultural High School were removed from the control of the technical branch and placed under the Inspector of Secondary Schools. Reference to the Agricultural Colleges will be found in the section dealing with Agriculture.

During the year 1919 large numbers of men were trained at the technical colleges at Sydney and Newcastle and in various suburban trades' schools under the vocational training scheme for returned soldiers. The total number in training at all centres was 1,488.

3. **Victoria.**—Technical instruction in mining has for many years received considerable attention in Victoria, the Ballarat School of Mines, which was established as far back as 1870, having achieved an Australasian reputation. Fine work was also done at the School of Mines in Bendigo, and later on excellent courses of training were evolved at the Working Men's College in Melbourne. The general scheme of instruction, however, lacked cohesion, and it was not until after the publication of the Report of the Royal Commission on Technical Education, which was appointed in 1899, that many defects were remedied. It is hoped that the Agricultural and District High Schools will serve as an extensive connecting link between the ordinary State Schools and the Technical Schools, as also the Junior Technical Schools established in and around Melbourne, and at Ballarat, Bendigo, Beechworth, Echuca, Geelong, Sunshine, and Warrnambool. At present there are 26 Technical Schools receiving State aid. The largest technical institution in Melbourne is the Working Men's College, founded in 1887. The College, in addition to giving instruction in a large number of technical subjects, is also a School of Mines. Such institutions as the Swinburne Technical College, and the Ballarat and Bendigo Schools of Mines, have also an extensive curriculum embracing the more important industrial subjects. There are at the present time 20 Junior Technical Schools

in existence, giving a two or three years' course of instruction to boys between the ages of 12½ and 15 years. Only one of these is an independent establishment, the others being worked in conjunction with technical schools.

Over 2,000 returned soldiers have been before the Vocational Training Committee and provision made for training and placing them in employment. At latest available date, instruction was being given in 34 trades, and the number is being added to as occasion demands. The staff and councils of the various Technical Schools have taken a great interest in the work of repatriation.

TECHNICAL EDUCATION, VICTORIA, 1916 TO 1920.

Year.				Number of Classes.	Number of Enrolments.	Average Attendance.	Fees Received.
							£
1916	..	..	..	104	12,049	7,724	16,439
1917	..	..	..	106	12,139	8,736	18,836
1918	..	..	..	110	13,300	9,119	19,044
1919	..	..	..	110	12,785	9,102	18,351
1920	..	..	..	115	14,174	10,548	29,132

4. Queensland.—Up to the passing of the "Technical Instruction Act of 1908," technical education in Queensland was controlled by local committees, the State simply providing financial aid. Under the provisions of this Act, the State took over the technical colleges at Brisbane, South Brisbane and West End, and formed therefrom a Central Technical College. By an amending Act in 1918, power was taken to assume the control of other technical institutions, and in 1919 the colleges at Toowoomba and Rockhampton came under departmental control. At the end of 1920 there were fifteen technical colleges in operation, and 34 branches were located in small towns within convenient reach of the Colleges. Preparatory Day Trade Schools were established at Ipswich and Brisbane in 1916, and Domestic Science Day Schools at Brisbane and Ipswich in 1915, and at Townsville in 1918. Several Itinerant Domestic Schools have been opened to meet the needs of districts where the population is not sufficient to warrant the establishment of permanent classes, and these institutions have been very successful. Vocational training for returned soldiers has been provided in Brisbane and at various country centres. The progress of technical education since 1916 is shewn in the following table :—

TECHNICAL EDUCATION, QUEENSLAND, 1916 TO 1920.

Year.				Number of Classes.	Enrolments.	Average Weekly Attendance.	Number of Teachers.	Fees Received.
								£
1916	..	..	..	365	8,644	8,500	283	12,024
1917	..	..	..	388	9,632	7,800	310	15,274
1918	..	..	..	421	9,900	8,500	295	14,851
1919	..	..	..	423	9,864	(a)8,000	348	11,364
1920	..	..	..	509	11,863	(a)9,000	377	13,074

(a) Estimated.

Greater attention is being devoted to the development of trade classes, and the Technical College authorities have been assisted by the University professors in the preparation of a properly organised system of Trade instruction. Full time Commercial Day Schools are in operation at Warwick, Ipswich, Brisbane, and Townsville. Preparatory Day Trade Schools have been established in connexion with the Central and Ipswich Technical Colleges. Trade Advisory Committees have been inaugurated in connexion

with several of the subjects of instruction at the Central Technical College. Compulsory attendance at technical classes in various districts has been provided for by industrial awards, the decisions so far—with the exception of Printing—being confined to trades connected with Engineering and Metal Working. The Department now pays about £2,000 per annum to the Technical Colleges for the instruction of selected State School pupils in approved subjects. Tuition by correspondence is given by the Central Technical School. It is believed that the raising of the school age to fourteen years, coupled with the establishment of High Schools, will result in a more effective co-ordination between ordinary and technical education in the State.

5. **South Australia.**—Prior to the year 1917 the condition of affairs in regard to technical education in Australia was regarded by the Education Department as unsatisfactory. There was a School of Mines and Industries in Adelaide, and in addition Schools of Mines at Moonta, Port Pirie, Kapunda, Mount Gambier, and Gawler. While the Government bore the bulk of the cost of maintenance of these institutions, they were controlled by independent councils, and there was no regular co-ordination in regard to staffs, curriculum, etc. A Director of Technical Education was appointed in 1916, and the reorganization of the system was thereupon undertaken. The work of the existing country schools was continued in 1920, and provision was made for the building of a new school at Thebarton. Five special schools for the vocational training of returned soldiers were established at Wayville, Edwardstown, Parkside, Kintore Avenue, City, and Port Pirie. During 1920 the work at Edwardstown and Port Pirie was so far completed that the schools were closed and the remaining students accommodated elsewhere. It is stated that about 1,200 students received the advantages of training in the vocational schools.

TECHNICAL EDUCATION, SOUTH AUSTRALIA, 1916 TO 1920.

Year.				Number of Classes.	Enrolments.	Average Weekly Attendance.	Number of Teachers.	Fees Received.
								£
1916	..	..	..	203	5,335	4,520	119	3,221
1917	..	..	..	195	6,273	5,307	105	3,974
1918	..	..	..	169	5,927	4,760	127	4,393
1919	..	..	..	207	6,819	4,453	134	4,177
1920	..	..	..	358	11,364	8,424	200	5,161

6. **Western Australia.**—A Technical School was established at Perth in 1900, and since its opening has progressed rapidly. Extensive additions to the buildings were made in 1909, and the remodelled institution was opened in 1910. The school is affiliated to the University. There are branch institutions at Midland Junction, Fremantle, Claremont, Kalgoorlie, Boulder, Geraldton, Bunbury, Collie, Coolgardie, and Albany. In addition, Continuation Classes are held at various centres. The total number of students on the roll at the end of 1920 was 3,158, of whom about 2,000 were in the Metropolitan District. The schools are all under the control of the Education Department, the officer entrusted with their supervision being styled Director of Technical Education. The Director also supervises the School of Mines at Kalgoorlie, which is controlled by the Mines Department. Advanced work at present is taken only in Perth, Fremantle, Boulder, and in Kalgoorlie by the School of Mines, the other branches dealing almost entirely with preparatory work, chiefly in Continuation Classes. Until the establishment of the local University, the Perth Technical School was affiliated with Adelaide University.

In 1918 a vocational training committee was formed to superintend the training of returned soldiers, and some 2,000 men were interviewed and advised by the Committee before a Special Selection Officer was appointed in October, 1919. Originally it was

proposed to train disabled men only, but later it was decided to extend the privilege to all returned soldiers who were under 20 years of age at the time of enlistment. Provision was made for accommodating the classes in the Technical School and in workshops and other premises built or rented in various parts of the metropolis. At the end of 1919 the trades classes contained nearly 600 men. It was proposed to transfer the control of the work in 1920 to the Defence Department.

At present pupils leaving the State Schools at the age of 14 to take up employment may by attendance at evening classes qualify for free admission to the Technical Schools. Those with leaving certificates from the eighth standard, and others able to devote their full time to study, may obtain day instruction at the Technical Schools in subjects bearing on their intended occupations, or may qualify for a more extended course, including graduation at the University. Returns for the last five years are embodied in the table hereunder:—

TECHNICAL EDUCATION, WESTERN AUSTRALIA, 1916 TO 1920.

Year.	Number of Classes.	Enrolments	Individual Students.	Number of Teachers.	Fees Received.
					£
1916	369	3,757	2,366	103	1,058
1917	439	5,100	2,767	120	1,083
1918	435	5,853	3,320	127	920
1919	463	5,713	3,337	130	842
1920	455	5,424	3,158	151	976

7. *Tasmania*.—Provision for technical education dates from the year 1888, but in the report of the Commission appointed in 1916 to enquire into the condition of technical education in Tasmania, allusion was made to the want of co-ordination between existing institutions and the Education Department, and it was recommended that the schools should be taken over by the Government, and a trained Technologist appointed as organizing inspector. The inspector was appointed in 1917 and a Technical Education Branch was established in 1918. The scheme of technical education includes—(1) The establishment of junior technical schools; (2) Reorganization of existing technical schools; (3) Establishment of senior classes in technical schools; (4) A domestic school for girls. The co-operation of employers and employees has been obtained and certain of the more advanced courses have been co-ordinated with the courses given at the University. There are Junior Technical Schools for boys at Hobart and Launceston, and for boys and girls at Queenstown and Zeehan. Senior Technical Schools are in operation at Hobart and Launceston organized into Departments of Engineering and Applied Science, Art, and Trade: and at Queenstown and Zeehan, courses in Metallurgical and Mining Engineering are undertaken. Vocational classes for returned soldiers were established at Hobart and Launceston, and it is anticipated that by the end of 1920 the training scheme will have been completed.

TECHNICAL EDUCATION, TASMANIA, 1916 TO 1920.

Year.	Number of Classes.	Enrolments.	Average Weekly Attendance.	Number of Teachers.	Fees Received.
					£
1916	69	882	433	37	992
1917	68	829	470	38	871
1918	68	836	472	38	878
1919	107	752	478	56	784
1920	135	1,152	784	63	1,338

8. Attendance at Commonwealth Technical Schools.—The table hereunder shews the enrolment and attendance at Technical Schools and classes in the Commonwealth during 1920 :—

ENROLMENT AND ATTENDANCE AT TECHNICAL SCHOOLS, ETC., 1920.

(COMMONWEALTH.)

State.	Enrolment.	Average Attendance.
New South Wales	18,119	13,808
Victoria	14,174	10,548
Queensland	11,863	9,000(a)
South Australia	11,304	8,424
Western Australia	5,424	3,158(b)
Tasmania	1,152	784
Commonwealth	62,036	45,722

(a) Estimated.

(b) Individual Students.

9. Expenditure on Technical Education.—The expenditure on technical education in each State during the period 1916 to 1920 is shewn below :

EXPENDITURE ON TECHNICAL EDUCATION, 1916 TO 1920.

(COMMONWEALTH.)

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
1916 { a	80,658	66,636	33,307	17,614	9,951	4,438	212,604
1916 { b	21,481	27,462	7,776	1,276	898	..	58,893
1917 { a	90,633	88,058	37,906	20,265	10,872	3,915	251,649
1917 { b	20,163	10,603	4,599	2,637	672	..	38,674
1918 { a	99,275	102,287	41,566	24,363	13,444	4,738	285,673
1918 { b	10,651	30,656	9,931	7,706	492	..	59,436
1919 { a	115,087	115,383	44,285	26,580	14,047	10,335	325,717
1919 { b	6,302	8,083	10,180	3,586	569	..	28,720
1920 { a	211,987	118,168	57,219	34,538	16,326	13,557	451,915
1920 { b	2,668	9,326	22,607	13,080	494	328	48,503

(a) Maintenance.

(b) Buildings.

The expenditure on maintenance for technical education in 1920 amounted to 1s. 8d. per head of the population of the Commonwealth, as compared with 21s. 3d. per head expended on maintenance for primary education, and apparently shews that technical education has not attained its proper place in the educational organization of Australia.

§ 7 Business Colleges and Shorthand Schools.

There has been considerable development in recent years both in the number and scope of privately conducted institutions, which aim at giving instruction in business methods, shorthand, typewriting, the use of calculating machines, etc. Particulars for all States excepting Queensland are given in the following table :—

BUSINESS COLLEGES, SHORTHAND SCHOOLS, ETC., 1920.

State.	Schools.	Teachers.	Students Enrolled.		Average Attendances.		Fees Received.
			Males.	Females.	Males.	Females.	
New South Wales ..	17	125	2,375	4,655	839	1,588	£ 42,929
Victoria ..	18	193	4,168	2,610	2,914	2,063	(b)
Queensland(a) ..	..	..	..	..	..	..	..
South Australia ..	5	46	964	743	662	508	11,114
Western Australia ..	14	62	1,377	1,036	(b)	(b)	15,976
Tasmania ..	3	14	215	257	144	140	3,408

(a) Included in private schools.

(b) Not available.

The figures for New South Wales are exclusive of students instructed at home through the medium of correspondence classes.

In Victoria it is explained that the preponderance of male students is due to the larger enrolment of males in the correspondence classes.

§ 8. Diffusion of Education.

1. **General Education.**—A rough indication of the state of education of the people is obtained at each Census under the three headings, "read and write," "read only," and "cannot read." The grouping of the whole population, exclusive of aborigines, in these three divisions is given for each Census since 1861:—

EDUCATION AT CENSUS PERIODS, 1861 TO 1911.

(COMMONWEALTH.)

State or Territory.		1861.	1871.	1881.	1891.	1901.	1911.
N.S.W.	Read & write	188,543	296,741	507,067	835,562	1,071,935	1,379,631
	Read only..	46,024	56,391	49,372	43,539	29,728	6,442
	Cannot read	116,293	149,866	193,386	244,853	253,183	260,661
Victoria	Read & write	328,362	478,464	653,346	908,490	998,010	1,136,289
	Read only..	57,351	70,953	47,950	32,794	21,852	4,630
	Cannot read	152,915	180,781	160,270	198,556	181,208	174,632
Q'land	Read & write	17,152	74,940	136,436	276,381	376,294	508,703
	Read only..	3,680	12,080	13,657	14,618	11,737	3,416
	Cannot read	9,227	33,084	63,432	102,719	110,098	93,694
S. Aust.	Read & write	72,190	117,349	200,057	236,514	290,748	344,095
	Read only..	18,535	21,509	15,267	9,571	8,283	1,785
	Cannot read	36,105	46,768	64,541	74,346	64,126	62,678
W. Aust.	Read & write	7,883	14,166	19,684	34,254	150,099	237,629
	Read only..	1,301	2,717	2,430	2,061	3,107	917
	Cannot read	5,853	7,902	7,594	13,467	30,918	43,568
Tasm'nia	Read & write	48,282	55,941	74,966	103,138	133,579	155,295
	Read only..	13,136	13,946	9,606	6,287	3,907	918
	Cannot read	28,559	29,441	31,133	37,242	34,989	34,998
Northern Ter. (c)	Read & write	..	..	..	..	..	2,397
	Read only..	..	..	..	..	..	34
	Cannot read	..	..	..	..	..	879
Federal Ter. (d)	Read & write	..	..	..	..	..	1,424
	Read only..	..	..	..	..	..	14
	Cannot read	..	..	..	..	..	276
C'wealth	Read & write	662,212	1,037,601	1,591,556	2,394,339	3,020,665	3,765,463
	Read only..	140,027	177,596	138,282	108,870	78,614	18,156
	Cannot read	348,952	447,842	520,356	671,183	674,522	671,386

(a) Including Federal Territory prior to 1911.

(b) Including Northern Territory prior to 1911.

(c) Included in South Australia prior to 1911.

(d) Included in New South Wales prior to 1911.

The proportion in the Commonwealth of the various classes per 10,000 of the population is shewn below for each Census period:—

PROPORTION OF EDUCATED AND ILLITERATE PER 10,000 PERSONS, 1861 TO 1911.

(COMMONWEALTH.)

Division.	1861.	1871.	1881.	1891.	1901.	1911.
Read and write	5,752	6,239	7,073	7,543	8,004	8,452
Read only ..	1,217	1,068	615	343	208	41
Cannot read ..	3,031	2,693	2,312	2,114	1,788	1,507

2. **Education of Children.**—The figures in the preceding tables refer to the entire population of the Commonwealth, and as the age constitution of those dwelling in the various portions of Australia underwent considerable modifications during the period dealt with, a far more reliable test of the diffusion of education will be obtained by a comparison of the Census returns in regard to children of school age. For comparative purposes this has been taken to include all children in the group over five and under fifteen years of age, and the degree of education of these at each Census will be found below :—

EDUCATION OF CHILDREN AT CENSUS PERIODS, 1861 TO 1911.

(COMMONWEALTH.)

State or Territory.		1861.	1871.	1881.	1891.	1901.	1911.
N.S.W. ^a	Read & write	34,040	68,776	121,735	196,240	251,187	291,450
	Read only..	20,345	26,886	25,100	21,375	15,934	993
	Cannot read	25,472	32,924	41,663	48,580	60,734	34,793
Victoria	Read & write	42,268	122,739	170,713	201,199	236,515	237,028
	Read only..	25,518	39,636	25,249	15,656	13,128	410
	Cannot read	19,341	29,490	21,421	27,441	27,765	19,621
Q'land	Read & write	2,156	12,698	33,317	62,402	95,635	117,347
	Read only..	1,534	6,104	7,019	7,580	5,955	616
	Cannot read	1,629	6,015	9,615	16,257	18,827	8,633
S. Aust. ^b	Read & write	15,485	30,608	46,630	58,291	69,451	69,878
	Read only..	8,748	12,432	7,926	4,618	4,229	248
	Cannot read	6,907	10,074	12,483	17,988	15,480	9,638
W. Aust.	Read & write	1,333	3,218	4,418	6,910	25,326	47,568
	Read only..	226	617	1,260	933	1,815	159
	Cannot read	1,015	1,795	1,593	2,348	5,431	5,234
Tasm'nia	Read & write	11,919	17,335	17,188	24,007	32,890	36,351
	Read only..	2,848	4,143	4,108	2,974	1,795	186
	Cannot read	4,581	6,663	6,606	8,829	8,475	5,675
Northern Ter. ^c	Read & write	..	..	..	..	..	195
	Read only..	..	..	..	..	..	..
	Cannot read	..	..	..	..	..	118
Federal Ter. ^d	Read & write	..	..	..	..	..	322
	Read only..	..	..	..	..	..	2
	Cannot read	..	..	..	..	..	47
C'wealth							
	Read & write	107,201	255,374	394,001	549,049	711,004	800,139
	Read only..	59,219	89,818	70,662	53,136	42,856	2,614
	Cannot read	58,945	86,961	93,381	121,443	136,712	83,659

(a) Including Federal Territory prior to 1911.

(c) Included in South Australia prior to 1911.

(b) Including Northern Territory prior to 1911.

(d) Included in New South Wales prior to 1911.

In the case of Tasmania full details for the years 1861 and 1871 are not available, and the figures for those years are approximate. The variation in degree of education may be more readily seen by reducing the foregoing figures to the basis of proportion per 10,000, and the results so obtained are embodied in the following table, a glance at which is sufficient to demonstrate the remarkable strides that at least the lower branches of education have made since 1861. In that year, only 47 per cent. of the children of school age could read and write, while 26 per cent. were illiterate. The returns for 1911 shew that the proportion of those who could read and write had increased to over 90 per cent., while the totally ignorant had declined by nearly two-thirds.

EDUCATION OF CHILDREN (AGES 5 TO 14) PER 10,000 AT CENSUS PERIODS.
1861 TO 1911.

(COMMONWEALTH.)

State or Territory.		1861.	1871.	1881.	1891.	1901.	1911.
N.S.W. ^a	Read & write	4,263	5,349	6,458	7,372	7,662	8,907
	Read only..	2,547	2,091	1,332	803	486	30
	Cannot read	3,190	2,560	2,210	1,825	1,852	1,063
Victoria	Read & write	4,851	6,397	7,853	8,236	8,526	9,221
	Read only..	2,929	2,066	1,162	641	473	16
	Cannot read	2,220	1,537	985	1,123	1,001	763
Q'land	Read & write	4,053	5,116	6,670	7,236	7,942	9,269
	Read only..	2,884	2,460	1,405	879	495	49
	Cannot read	3,063	2,424	1,925	1,885	1,563	682
S Aust. ^b	Read & write	4,973	5,763	6,956	7,206	7,790	8,761
	Read only..	2,809	2,341	1,182	571	474	31
	Cannot read	2,218	1,896	1,862	2,223	1,736	1,208
W. Aust.	Read & write	5,179	5,716	6,076	6,780	7,775	8,982
	Read only..	878	1,096	1,733	916	557	30
	Cannot read	3,943	3,188	2,191	2,304	1,668	988
Tasm'nia	Read & write	6,160	6,160	6,160	6,704	7,620	8,632
	Read only..	1,472	1,472	1,472	830	416	44
	Cannot read	2,368	2,368	2,368	2,466	1,964	1,324
Northern Terr. ^c	Read & write	..	..	..	..	..	6,230
	Read only..	..	..	..	..	..	..
	Cannot read	..	..	..	..	..	3,770
Federal Terr. ^d	Read & write	..	..	..	..	..	9,868
	Read only..	..	..	..	..	..	5
	Cannot read	..	..	..	..	..	127
C ^w wealth	Read & write	4,757	5,910	7,061	7,588	7,984	9,027
	Read only..	2,628	2,078	1,266	734	481	29
	Cannot read	2,615	2,012	1,673	1,678	1,535	944

(a) Including Federal Territory prior to 1911.

(c) Including Northern Territory prior to 1911.

(b) Included in South Australia prior to 1911.

(d) Included in New South Wales prior to 1911.

3. Education as shewn by Marriage Registers.—Another common method of testing the spread of education is to compare the number of mark signatures with the total number of persons married during each year of a series. The percentage of males and females signing with a mark to the total persons married in the Census years 1861 to 1901, and during each of the last nine years, was as follows. The figures refer to marriages in the Commonwealth in respect of which information was obtainable.

ILLITERACY SHEWN BY MARRIAGE SIGNATURES, 1861 TO 1920.

(COMMONWEALTH.)

Year.	Proportion Signing with Marks of Total Persons Married.			Year.	Proportion Signing with Marks of Total Persons Married.		
	Males.	Females.	Total.		Males.	Females.	Total.
	Per cent.	Per cent.	Per cent.		Per cent.	Per cent.	Per cent.
1861 ..	18.50	30.69	24.60	1911 ..	0.56	0.54	0.55
1871 ..	10.58	16.40	13.49	1915 ..	0.27	0.27	0.27
1881 ..	4.34	6.78	5.56	1916 ..	0.37	0.32	0.35
1891 ..	2.27	2.40	2.34	1917 ..	0.37	0.31	0.34
1901 ..	1.35	1.29	1.32	1918 ..	0.33	0.29	0.31
1909 ..	0.65	0.62	0.64	1919 ..	0.27	0.27	0.27
1910 ..	0.56	0.59	0.58	1920 ..	0.18	0.14	0.16

The table shews that there has been a large diminution in illiteracy, and judging from the figures for the last few years the proportion bids fair to practically disappear. Up to 1891 there was a higher proportion of illiteracy amongst females, but during the later years the rates have been very even.

§ 9. Miscellaneous.

1. Scientific Societies.—(a) *Royal Societies.* Despite the trials and struggles incidental to the earlier years of the history of Australia, higher education and scientific advancement were not lost sight of. Thus the origin of the Royal Society dates as far back as 1821, when it was founded under the name of the Philosophical Society of Australasia, Sir Thomas Brisbane being its first president. Scientific work was fitfully carried on by means of a Society whose name varied as the years rolled on. It was called the Australian Philosophic Society in 1850. In 1856 the old Australian Society merged into a resuscitated Philosophical Society of New South Wales, and its papers were published up to 1859 in the Sydney Magazine of Science and Art (2 vols., 1858-9). Its present title dates from 1866. Some of the papers of the old Philosophical Society were published in 1825 under the title of "Geographical Memoirs of New South Wales" (Barron Field), and contain much that is interesting in regard to the early history of Australia. One volume containing the Transactions of the Philosophical Society of New South Wales (1862-65) was published in 1866. The journal of the Society did not begin to bear a serial number, however (vol. 1), until the year 1867. "Transactions of the Royal Society of New South Wales" were issued in 1867, the title of the series being altered to "Journal" in 1878. Up to the end of 1921, 55 volumes had been published. The exchange list comprises the names of 332 kindred societies. At the present time the library contains over 30,000 volumes and pamphlets, valued at about £8,600. Income and expenditure for the year ended 31st March, 1922, were £1,658 and £1,584 respectively, and the Society had on the same date 375 members.

The Royal Society of Victoria dates from 1854, in which year the Victorian Institute for the advancement of Science and the Philosophical Society of Victoria were founded. These were amalgamated in the following year under the title of the Philosophical Institute of Victoria, whilst the Society received its present title in 1860. The first volume of its publications dates from 1855. Up to 1921, 67 volumes of proceedings had been issued. The Society exchanges with 277 kindred bodies. The constitution of the Society states that it was founded "for the promotion of art, literature, and science, but for many years past science has monopolised its energies. The library contains over 12,500 volumes, valued approximately at £3,325. Income for the year 1921 amounted to £382, and expenditure to £447. There are 210 members on the roll.

The inaugural meeting of the Royal Society of Queensland was held on the 8th January, 1884, under the presidency of the late Sir A. C. Gregory. The Society was formed "for the furtherance of the natural and applied sciences, especially by means of original research." Shortly after its formation it received an addition to its ranks by the amalgamation with it of the Queensland Philosophical Society, which was started at the time when Queensland became a separate colony. At the end of 1920 the members numbered 101; publications issued, 33 volumes; library, 6,600 volumes; societies on exchange list, 170. Income and expenditure in 1920 amounted to £333 and £300 respectively.

The present Royal Society of South Australia grew out of the Adelaide Philosophical Society, which was founded in 1853, its object being the discussion of all subjects connected with science, literature and art. Despite this programme, the tendency of the papers was distinctly scientific, or of a practical or industrial nature. With the advent of the late Professor Tate the society became purely scientific. Permission to assume the title of "Royal" was obtained in 1879, the Society thenceforward being known as "The Royal Society of South Australia." In 1903 the society was incorporated. In 1921 the number of members was 95. The income for the year 1921 was £535, and expenditure £541. Up to 1921 the Society had issued 45 volumes of proceedings and 8 parts

of memoirs, exclusive of several individual papers published in earlier years. The exchange list numbers about 220, while the library contains 3,900 volumes and over 1,800 pamphlets.

Permission to assume the title of Royal Society was granted to the Natural History and Science Society of Western Australia in March, 1914. This Society has grown out of the Mueller Botanic Society, founded in July, 1897. The objects of the society are the study of natural history and pure science, promoted by periodical meetings and field excursions, the maintenance of a library, and issue of reports of proceedings. It numbers at present 128 members, whose subscriptions form its main source of revenue, the income and expenditure in 1921-22 being each £112. Five volumes of proceedings were issued as Journal of the Natural History and Science Society of Western Australia, and eight as of the Royal Society. Its publications are exchanged with 122 institutions at home and abroad. The library contains 200 volumes, besides 350 unbound journals, pamphlets, etc.

The Royal Society of Tasmania (the first Royal Society outside the United Kingdom) was inaugurated by Sir Eardley Wilmot, Lieutenant-Governor of Van Diemen's Land, on the 14th October 1843. It may be mentioned, however, that a scientific society had been formed as far back as 1838 under the presidency of Sir John Franklin, then Governor of the colony, and in 1841 the number of resident members was 31, and corresponding members, 38. The meetings of this parent society were held at Government House, and three volumes of proceedings were issued. A large portion of the Colonial Gardens, together with a grant of £400, was given to the Society. A library and museum were established in 1848. In 1885 the museum and gardens were given back to the State, the Society being granted room in the museum for its library and meetings. The names of Captains Ross and Crozier, of H.M.S. *Erebus* and *Terror* , appear in the list of the first corresponding members. The society, which, since 1844, has published 61 annual volumes of proceedings, possesses 217 members, 11 corresponding members, 9 life members, exchanges with 223 kindred bodies, and has a library containing 13,000 volumes, in addition to manuscripts, etc., valued at over £10,000. Income for the year 1921 was £425, and expenditure £445.

(b) *Other Scientific Societies.* The Australasian Association for the Advancement of Science, founded in 1888, has its head-quarters in Sydney. It meets usually in each State biennially in turn. Its receipts at latest available date were about £14,000, including Government aid to the amount of £4,000. The library contains 4,000 volumes and parts valued at £400. Up to 1921, 14 volumes of proceedings have been issued. The exchange list numbers about 140. The Linnean Society of New South Wales, with head-quarters in Sydney, was founded in 1875, and possesses a library of 11,000 volumes, valued at £6,000. Up to date 45 volumes of proceedings have been issued. This Society maintains five investigators engaged in research work, and owes its development almost entirely to the benefactions of Sir William Macleay. The number of ordinary members at the end of 1920 was 159. Income for the year came to £4,454, and expenditure to £4,705, including £1,996 for research purposes. The British Astronomical Society has a branch in Sydney, and in some of the States the British Medical Association has branches.

The Chemical Society of Western Australia was founded in 1915, for the promotion of the study of Chemistry and the furtherance of the interests of professional chemists. Meetings are held monthly. There is a council consisting of seven members.

In addition to the societies enumerated above, there are various others in each State devoted to branches of scientific investigation, particulars respecting which are not at present available.

2. Libraries.—As far as can be ascertained the total number of libraries in the Commonwealth at the latest available date was about 1,800, and the number of books contained therein is estimated at about five millions. In each of the capital cities there is a well-equipped Public Library, the institutions in Melbourne and Sydney especially comparing very favourably with similar institutions elsewhere. The reading room at the Melbourne Library ranks amongst the finest in the world. It was opened in November, 1913, and has a diameter of 114 feet, with a similar height, and is capable

of seating 320 readers at a time, all of whom are under efficient supervision from the centre of the room. The following statement gives the number of volumes in the Public Library of each capital city :—

METROPOLITAN PUBLIC LIBRARIES, 1920.

City.	Number of Volumes in—			Total.
	Reference Branch.	Ordinary Lending Branch.	Country Lending Branch.	
Sydney	(a)320,277	(b)	27,714	347,991
Melbourne	274,856	38,101	..	312,957
Brisbane	42,230	..	..	42,230
Adelaide	111,522	37,283	..	148,805
Perth	112,442	14,830	..	127,272
Hobart	22,702	..	..	22,702

(a) Including 103,992 volumes in the Mitchell Library.

(b) The maintenance and control of the ordinary lending branch of the Public Library at Sydney were transferred in 1908 to the Municipal Council. At the end of December, 1920, the books numbered 36,656.

Mention may be made here of the free library attached to the Commonwealth Patents Office, which contains over 10,000 volumes, including literature dealing with patents in the principal countries of the world.

The Mitchell Library in Sydney consisted of over 60,000 volumes and pamphlets, and 300 paintings, principally relating to Australasia, valued at £100,000, and bequeathed in 1907 by Mr. D. S. Mitchell, together with an endowment of £70,000. The testator stipulated that the regulations of the British Museum were to be adopted as far as practicable, hence the library is the resort of specialists. There are now about 104,000 volumes in the library. During 1917 the Mitchell Library was further enriched by a donation of 3,676 printed volumes, 117 volumes of manuscript, and 235 pamphlets from the working library of the late John Tebbutt, of Windsor, the well-known astronomer. A very fine collection of New South Wales postage and fiscal stamps, estimated by philatelists to be worth at least £20,000, was presented to the trustees by Mr. H. L. White, of Belltrees, near Scone, in June of the same year. In 1921 this gift was supplemented by the presentation of a very fine collection of Queensland and Western Australian stamps, also valued by experts at about £20,000. The Fisher Library at the Sydney University contains 117,000 volumes, and the library attached to the Australian Museum, 23,000 volumes.

A special research staff attached to the Public Library gives valuable assistance in making readily available to inquirers the store of information contained in books, etc., which, owing to limitations of space, are not in open access.

For some years past efforts have been made in South Australia to collect original documents likely to be of service in compiling a history of the State. So far back as 1914 Professor Henderson, of Adelaide University, under commission from the South Australian Government, visited and reported on the system of keeping archives in England, France, Belgium, Holland, and Ceylon, and obtained valuable information also from the United States and Canada. A department of historical documents has been created under the care of an archivist, and valuable preliminary work done in connexion with the examination, classification, and permanent preservation of the available papers. A suitable building for housing the documents and the staff was provided in 1921.

The library at Launceston, in Tasmania, contains 30,000 volumes.

The number of libraries in receipt of State or municipal aid, together with the estimated number of books contained therein, is given below for each State :—

SUBSIDISED LIBRARIES AND BOOKS THEREIN.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.Ter.
Number of libraries	(a)	450	215	221	263	22	3
Estimated number of books	1,460,000	1,208,000	394,000	631,000	274,000	107,000	4,000

(a) Not available.

The figures in the above table can be taken only as approximations, as in many instances returns were not received from various institutions. For New South Wales returns are not available for municipal libraries other than that in Sydney, or for libraries attached to Schools of Arts, Mechanics' Institutes, and similar institutions. The Parliamentary Library in Sydney possesses over 52,000 books.

3. **Museums.**—The Australian Museum in Sydney, founded in 1836, is the oldest institution of its kind in Australia. In addition to possessing a fine collection of the usual objects to be met with in kindred institutions, the Museum contains a very valuable and complete set of specimens of Australian fauna. The cost of construction of the building was £79,000. The number of visitors to the institution in 1920 was 217,000, and the average attendance on week-days 588, and on Sundays 256. The expenditure for 1920 amounted to £13,332. A valuable library containing about 23,000 volumes is attached to the Museum. Representative collections, illustrative of the natural wealth of the country, are to be found in the Agricultural and Forestry Museum, and the Mining and Geological Museum. The latter institution prepares collections of specimens to be used as teaching aids in country schools. The "Nicholson" Museum of Antiquities, the "Macleay" Museum of Natural History, and the Museum of Normal and Morbid Anatomy, connected with the University, and the National Herbarium and Botanical Museum at the Sydney Botanic Gardens, are all accessible to the public. There is a fine Technological Museum in Sydney, with branches in six country centres, the combined institutions containing over 120,000 specimens. Valuable research work has been undertaken by the scientific staff in connexion with oil and other products of the eucalyptus. The number of visitors at the Technological Museums during 1920 was about 244,000.

The National Museum at Melbourne, devoted to Natural History, Geology, and Ethnology, is located in the Public Library Building. The National Art Gallery is also situated in the same building. The Industrial and Technological Museum, opened in 1870, contains over 9,000 exhibits. There is a fine Museum of Botany and Plant Products in the Melbourne Botanic Gardens. In addition to the large collection in the geological museum attached to the Mines Department in Melbourne, well-equipped museums of mining and geological specimens are established in connexion with the Schools of Mines in the chief mining districts.

The Queensland Museum dates from the year 1871, but the present building was opened in January, 1901. Since its inauguration the Government has expended on the institution a sum of £100,095, of which buildings absorbed £20,180, purchases £29,562, and salaries £50,353. The number of visitors during the year was 90,397, of whom 36,000 visited the institution on Sundays. The Queensland Geological Survey Museum has branches in Townsville, opened in 1886, and in Brisbane, opened in 1892.

Under the Public Library Act of 1884 the South Australian Institute ceased to exist, and the books contained therein were divided amongst the Museum, Public Library, and Art Gallery of South Australia, and the Adelaide circulating Library. The Museum was attended by 88,000 visitors in 1920.

The latest available returns shew that the Western Australian Museum contains altogether 93,000 specimens, of an estimated value of £79,500. The Museum is housed in the same building as the Art Gallery, and the visitors to the combined institutions

during the year reached 86,000. Cost of construction of the building amounted to £45,800. The expenditure for the year 1920-21 was £6,025, and the Government grants for the year amounted to £5,500, the figures in each case including returns for the Public Library.

There are two museums in Tasmania—the Tasmanian Museum at Hobart, and the Victoria Museum and Art Gallery at Launceston—both of which contain valuable collections of botanical and mineral products. The Tasmanian Museum received aid from the Government during 1920 to the extent of £1,000. The Hobart institution cost £9,500 to construct, and that at Launceston £6,000.

4. Art Galleries.—Information regarding the State collections of objects of art in the various capitals is in some cases very meagre, while the method of presentation does not admit of any detailed comparisons being made. The National Art Gallery of New South Wales originated in the Academy of Art founded in 1871. Cost of construction is returned at £94,000. The contents, which are valued at £159,000, comprise 485 oil paintings, 461 water colours, 712 black and white, 175 statuary and bronzes, and 466 ceramics, works in metal and miscellaneous. During 1920 the average attendance on week days was 483, and on Sundays 1,548.

The National Gallery at Melbourne, at the end of 1920, contained 613 oil paintings, 4,722 objects of statuary, bronzes and ceramics, and 14,382 water colour drawings, engravings, and photographs. The Gallery is situated in the same building as the Museum and Public Library, the total cost of construction being £327,000. Several munificent bequests have been made to the institution. That of Mr. Alfred Felton, given in 1904, amounts to about £8,000 per annum. In 1913, Mr. John Connell presented his collection of art furniture, silver, pictures, etc., the whole being valued at £10,000. The Art Gallery at Ballarat contains 222 oil paintings and 171 water colours, etc., while there are some valuable works of art in the smaller galleries at Bendigo, Castlemaine, Geelong, and Warrnambool.

The Queensland National Art Gallery, situated in the Executive Buildings, Brisbane, was founded in 1895, and contains a small, but well chosen, collection of pictures. At the end of 1920 there were on view 101 oil paintings, 25 water colours, 133 black and white, and 30 pieces of statuary, together with various prints, mosaics, and miniatures. Exclusive of exhibits on loan, the contents are valued at about £11,000. Visitors during the year averaged 139 on Sundays and 110 on week days.

The Art Gallery at Adelaide dates from 1880, when the Government expended £2,000 in the purchase of pictures, which were exhibited in the public Library Building in 1882. The liberality of private citizens caused the Gallery to rapidly outgrow the accommodation provided for it in 1889 at the Exhibition Building, and on the receipt of a bequest of £25,000 from the late Sir T. Elder, the Government erected the present building, which was opened in April, 1900. The Gallery also received bequests of £16,500 in 1903 from the estate of Dr. Morgan Thomas, and of £3,000 in 1907 from Mr. David Murray. At the 30th June, 1920, there were in the Gallery 239 oil paintings, 76 water colours, and 24 statuary. Building and site are valued at upwards of £31,000. Visitors during the year 1920 numbered 76,000.

The foundation stone of the present Art Gallery at Perth in Western Australia was laid in 1901, the building and site being valued at £92,000. As is the case in Melbourne the Public Library, Museum, and Art Gallery are all situated in the one structure. The collection comprises 113 oil paintings, 55 water colours, 561 black and white, and 800 ceramics and miscellaneous. It is estimated that the collections in the gallery possess a value of £14,000.

In Tasmania, the Art Gallery at Hobart was opened in 1887. Its present contents consist of 70 oil paintings, 93 water colours, 11 black and white, and 175 etchings, engravings, etc., the value of the contents being estimated at £6,500.

The Art Gallery at Launceston was erected in 1888 at a cost of £6,000, and opened on the 2nd April, 1891. Only a small proportion of the contents belong to the gallery, the bulk of the pictures being obtained on loan. At latest date there were on view 95 oil paintings, 20 water colours, and miscellaneous exhibits, the whole being valued at £10,000.

5. **State Expenditure on all Forms of Educational Effort.**—The expenditure from the Consolidated Revenue in each State and Territory on all forms of educational and scientific activity during each of the last five financial years was as follows :—

EXPENDITURE ON EDUCATION, SCIENCE, AND ART, 1916-17 TO 1920-21.

State or Territory.		1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
New South Wales	Total £	1,870,043	1,968,366	2,139,541	2,359,900	3,737,960
	Per head	19/11	20/6	21/9	23/1	35/8
Victoria	Total £	1,171,757	1,227,629	1,248,094	1,474,877	1,847,184
	Per head	16/8	17/4	17/5	19/7	24/2
Queensland	Total £	763,591	827,332	892,992	1,103,334	1,350,399
	Per head	22/6	24/1	25/4	29/11	35/11
South Australia	Total £	376,730	397,210	428,519	487,609	607,160
	Per head	17/0	17/9	18/9	20/3	24/9
Western Australia	Total £	368,603	397,661	407,822	460,384	543,356
	Per head	24/0	25/11	26/4	28/1	32/10
Tasmania	Total £	132,590	140,766	158,501	179,871	263,524
	Per head	13/7	14/3	15/7	17/1	24/9
Northern Territory	Total £	2,257	2,479	2,676	2,467	4,291
	Per head	9/8	10/3	11/6	10/10	21/6
Commonwealth						
	Total £	4,685,571	4,961,443	5,279,045	6,068,442	8,353,874
	Per head	19/1	19/11	20/9	22/11	30/10

The comparatively heavy increases during the last five years are largely due to the greater cost of building, equipment, and maintenance, and, in the last two years especially, to increases in teachers' salaries and allowances.

SECTION XXIII.

PUBLIC JUSTICE.

§ 1. Police.

1. **Introductory.**—In previous issues of the Year Book a résumé was given of the evolution of the police force in Australia up to the passing of the Police Act of 1862 (25 Vic. No. 16) in New South Wales, but considerations of space preclude its inclusion in the present volume.

In general terms the police forces of Australia may be said to be satisfactory both in regard to physique and intelligence, while as regards methods of prevention and detection of crime it is believed that the system in vogue here compares very favourably with those of the older-settled countries of the world.

2. **Strength of Police Force.**—The strength of the police force in each State during the five years ended 1920 was as follows. It may be mentioned that the police forces are entirely under State control, but, by arrangement, the Commonwealth Government utilizes their services in various directions, such as the collection of particulars for Commonwealth electoral rolls, etc. :—

POLICE FORCES IN THE COMMONWEALTH, 1916 TO 1920.

State.	Area of State in Sq. Miles.	1916.	1917.	1918.	1919.	1920.
New South Wales ..	310,372	2,587	2,557	2,481	2,569	2,630
Victoria ..	87,884	1,638	1,650	1,558	1,719	1,733
Queensland ..	670,500	1,176	1,152	1,141	1,119	1,126
South Australia ..	380,070	567	540	521	541	566
Western Australia..	975,920	473	472	465	466	473
Tasmania ..	26,215	232	235	235	243	240
Northern Territory	523,620	27	27	28	32	32
Commonwealth ..	2,974,581	6,700	6,633	6,429	6,689	6,800

The figures for New South Wales for 1920 are exclusive of 33 "black trackers," i.e., natives employed in detection of offenders chiefly in outlying districts, and four female searchers. In Queensland there were 86 native trackers and 1 female searcher. The South Australian returns for 1920 are exclusive of 10 "black trackers" and 1 female searcher. The Northern Territory had 27 "black trackers" in 1919. There are also 43 "black trackers" and 5 female searchers in Western Australia, not included in the table.

Average Number of Inhabitants to each Police Officer. The average number of inhabitants to each officer in each State during the same period is as follows. In considering these figures, allowance must, of course, be made for the unequal area and unequal distribution of the population of the various States.

INHABITANTS TO EACH POLICE OFFICER, 1916 TO 1920.

(COMMONWEALTH.)

State.	Number of Persons per Sq. Mile, 1921 Census.	Inhabitants to each Police Officer.				
		1916.	1917.	1918.	1919.	1920.
New South Wales	6.76	732	475	784	779	786
Victoria	17.43	864	855	914	857	872
Queensland	1.13	583	593	613	648	664
South Australia	1.30	779	819	867	866	860
Western Australia	0.34	661	648	662	686	697
Tasmania	8.16	838	827	844	844	877
Northern Territory .. ..	..	176	180	174	145	132
Commonwealth	1.83	738	746	782	777	788

The figures in the preceding tables shew a great disparity in the relative numbers of the population protected by each police officer in the various States, and also in the relative area of territory to each officer. Western Australia and South Australia exhibit the largest figures in the latter respect, this, of course, being due to the fact that extensive areas in each State are as yet unpeopled by white settlers.

3. **Duties of the Police.**—In addition to the ordinary employment attaching to their office, the police are called upon to perform many duties which in other countries are carried out by various functionaries. Thus, in Queensland, according to the Commissioner's report for 1921, no less than sixty-six subsidiary offices are held by the police. The Commissioner for South Australia, in his Report for 1921, mentions that during this year the police made 92,479 enquiries for other Departments. As far as the statistician is concerned, it is found that the expert local knowledge possessed by the police renders their services in the collection of such returns as those relating to the agricultural, pastoral and manufacturing industries, private schools, etc., more than ordinarily valuable. Then, again, the fact that their services are enlisted by such widely different departments as those dealing with mines, stock, agriculture, elections, registrations of births, deaths and marriages, forestry, fisheries, explosives, old-age pensions, lunacy, public works, labour, etc., greatly enhances their general alertness by widening the range of their experience. Occasionally the objection is heard in some quarters that these special tasks involve some degree of sacrifice of ordinary routine duties, but that the general intelligence of the Australian police is adequate to the performance of the work, besides being most creditable, results in a great saving of the public money.

4. **Cost of Police Forces.**—The expenditure from Consolidated Revenue on the police forces in each State during the five years 1916 to 1920 is shewn in the following table:—

COST OF POLICE FORCES IN THE COMMONWEALTH, 1916 TO 1920.

State.	1916.	1917.	1918.	1919.	1920.
	£	£	£	£	£
New South Wales	649,093	709,649	722,754	977,506	1,101,767
Victoria	356,885	371,413	397,025	490,016	577,407
Queensland	322,422	337,259	346,802	407,480	476,153
South Australia	127,632	136,158	151,090	159,258	197,157
Western Australia	125,446	136,752	136,295	171,832	186,717
Tasmania	47,320	49,448	54,960	66,940	79,372
Northern Territory	10,260	10,210	10,200	11,435	12,970
Commonwealth	1,639,058	1,750,889	1,819,126	2,284,467	2,631,543

The total for New South Wales in 1920 includes £80,000 payment to Police Superannuation Fund. Similar payments in Victoria and Queensland amount to £40,000 and £36,000 respectively, while smaller sums are included in the returns for other States. The cost per head of the population in each State for the period 1916 to 1920 was as follows :—

COST OF POLICE PER INHABITANT, 1916 TO 1920.

(COMMONWEALTH.)

State.	1916.	1917.	1918.	1919.	1920.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
New South Wales	6 10	7 5	7 5	9 9	10 8
Victoria	5 1	5 3	5 7	6 8	7 8
Queensland	9 3	9 10	9 11	11 1	12 9
South Australia	5 9	6 2	6 8	6 10	8 1
Western Australia	8 0	8 11	8 10	10 9	11 4
Tasmania	4 10	5 1	5 7	6 6	7 7
Northern Territory	43 2	42 1	41 11	49 2	61 7
Commonwealth	6 8	7 1	7 3	8 9	9 10

The relatively high cost per head in Queensland and Western Australia is due to the fact that there are in those States extensive areas of sparsely settled country, in which mounted patrols have to be maintained.

Increases in salary and in cost of supplies and equipment are responsible for the all-round rise which took place in 1920.

In view of the small number of its white population and the vast extent of country to be patrolled, the figures for the Northern Territory necessarily shew a very high average. The duties of the police, moreover, chiefly pertain to matters connected with the control of aborigines.

Expenditure in connexion with police patrol in Papua during 1920-21 amounted to about £17,600.

§ 2. Lower (Magistrates') Courts.

1. Introductory.—In considering the criminal returns of the various States, due allowance must be made on account of several factors, such as the relative powers of the courts, both lower and higher, etc. In the case of lower courts, the actual number of laws in each State, the breach of which renders a person liable to fine or imprisonment, must be taken into account. Again, the attitude of the magistracy and police towards certain classes of offences is a factor, for in the case of liquor laws, or laws connected with vagrancy or gaming, the views of magistrates, and instructions issued to the police, may be responsible for considerable variations in the returns. The strength and distribution of the police forces, and the age constitution and distribution of the State's population, also influence the results. In any consideration of criminal returns, due weight should also be given to the prevalence of undetected crime, but information on this point can only be obtained for the State of Victoria. It may be mentioned that each State has its own separate judicial system, the Commonwealth jurisdiction being confined to the High Court of Australia, which is largely a Court of Appeal intermediate to the Privy Council, although it has also original jurisdiction, and the Commonwealth Court of Arbitration and Conciliation. Full particulars regarding the judicial power of the Commonwealth will be found in Chapter III. of the Commonwealth Constitution (see page 19).

2. Powers of the Magistrates.—In New South Wales there is no general limit to the powers of the magistrates in regard to offences punished summarily, their authority depending in each case on the statute which creates the offence and gives them jurisdiction. Except in the case of a very few statutes, and excluding cumulative sentences, the power

of sentence is limited to six months. Imprisonment in default of payment of fine is regulated by a scale limiting the maximum period according to the sum ordered to be paid, but in no case exceeding twelve months. Actions for debt and damage within certain limits also come within magisterial jurisdiction. In cases of debts, liquidated or unliquidated, the amount recoverable is not exceeding £50 before a court constituted of a stipendiary or police magistrate at certain authorized places, and not exceeding £30 at any other place before a court constituted of a stipendiary or police magistrate or two or more justices of the peace. The amount in actions of damage is limited to £10, but may extend to £30 by consent of parties.

In Victoria, the civil jurisdiction of magistrates is restricted to what may be designated ordinary debts, damages for assault, restitution of goods, etc., where the amount in dispute does not exceed £50. No definite limit is fixed to the powers of the magistrates on the criminal side, and for some offences sentences up to two years may be imposed. The proportion of long sentences is, however, comparatively small.

In Queensland, generally speaking, the maximum term of imprisonment which justices can inflict is six months, but in certain exceptional cases, such as offences against sections 233 and 445 of the Criminal Code (betting-houses and illegally using animals) sentences of twelve months may be imposed. No limit exists as to the extent to which cumulative sentences may be applied, but in practice the term is never very lengthy.

In South Australia, under the Minor Offences Act, magistrates can impose sentences up to six months, and under the Summary Convictions Act, up to three months. The Police Act of 1916 gives power to sentence up to one year, with hard labour, in the case of incorrigible rogues; while under the Quarantine Act of 1877, and the Lottery and Gaming Act of 1875, sentences of two years may be imposed.

Under the Petty Offences Act of 1867, in Tasmania, any person charged with having committed, or with having aided or abetted in the commission of an offence, in regard to property of a value not exceeding £10, may, on conviction, for a first offence, before two or more justices in Petty Sessions, be imprisoned for any term not exceeding one year, and for a term not exceeding two years for a second or subsequent offence.

3. Persons Charged at Magistrates' Courts.—The total number of persons who were charged before magistrates in each State is given below for the five years 1916 to 1920 :—

**PERSONS CHARGED BEFORE MAGISTRATES IN THE COMMONWEALTH,
1916 TO 1920.**

State.	1916.	1917.	1918.	1919.	1920.
New South Wales ..	82,036	71,666	76,870	78,103	89,572
Victoria	59,315	52,175	58,965	58,470	56,698
Queensland	25,206	24,243	25,006	21,926	24,180
South Australia ..	8,322	8,627	9,161	8,804	10,143
Western Australia ..	15,454	11,885	11,599	9,769	10,430
Tasmania	5,259	5,278	6,583	6,362	6,629
Northern Territory ..	313	239	301	221	221*
Commonwealth ..	195,905	174,113	188,485	183,655	197,873

* Year 1919. Returns for 1920 not available.

As the table shews, there was a large decrease in 1917 in charges in New South Wales, Victoria, Queensland, and Western Australia, small increases being recorded in South Australia and Tasmania. In 1918, increases were shewn in all States except Western Australia, in 1919 a decline was experienced in all States except New South Wales, but for 1920 an increase was recorded in all States with the exception of Victoria.

Investigation of the returns shews, however, that considerable variations in the total for single States are occasioned by breaches of new Acts, or the more stringent

enforcement of the provisions of existing Acts. Any deductions drawn from the total returns as to the increase or otherwise of criminality must, therefore, be largely influenced by a careful analysis of the detailed list of offences. (See also § 2, 1, *ante*.)

The figures given in the tabulation above include, of course, a number of people who were wrongly charged, and statistically are not of general importance. The actual number of convictions in connexion with the persons who appeared before the lower courts in each year of the period 1916 to 1920 is, therefore, given hereunder. A separate line is added shewing the committals to higher courts.

CONVICTIONS AND COMMITTALS AT MAGISTRATES' COURTS, 1916 TO 1920.

(COMMONWEALTH.)

State.		1916.	1917.	1918.	1919.	1920.
New South Wales ..	{ Convictions	68,615	59,999	63,811	64,518	64,803
	{ Committals	1,656	1,383	1,308	1,680	2,239
Victoria ..	{ Convictions	40,246	38,757	44,900	44,623	43,088
	{ Committals	552	495	406	575	795
Queensland ..	{ Convictions	23,161	21,985	22,818	19,773	21,922
	{ Committals	304	312	207	255	309
South Australia ..	{ Convictions	7,145	7,417	7,898	7,527	8,628
	{ Committals	71	82	79	74	123
Western Australia ..	{ Convictions	13,595	10,535	10,162	8,702	9,198
	{ Committals	141	126	96	127	112
Tasmania ..	{ Convictions	4,614	4,722	5,854	5,807	6,033
	{ Committals	42	40	37	55	72
Northern Territory	{ Convictions	288	230	255	187	187*
	{ Committals	3	3	6	3	3*
Commonwealth	{ Convictions	157,664	143,845	155,698	151,137	153,859
	{ Committals	2,769	2,441	2,139	2,769	3,653

* Year 1919. Returns for 1920 not available.

4. **Convictions for Serious Crime.**—While the figures given in the preceding table refer to the entire body of convictions, the fact must not be overlooked that they include a large proportion of offences of a technical nature, many of them unwittingly committed, against various Acts of Parliament. Cases of drunkenness and minor breaches of good order, which, if they can be said to come within the category of crime at all, at least do so in a very different sense to some other offences, also help to swell the list. The following table has, therefore, been prepared for the purpose of shewing the convictions at magistrates' courts for what may be regarded as the more serious offences, *i.e.*, against the person and property, either separately or conjointly, and forgery and offences against the currency:—

CONVICTIONS FOR SERIOUS CRIME AT MAGISTRATES' COURTS, 1916 TO 1920.

(COMMONWEALTH.)

State.		1916.	1917.	1918.	1919.	1920.
New South Wales ..	..	6,271	5,499	6,355	7,232	7,704
Victoria ..	..	2,736	2,830	3,162	2,976	4,294
Queensland ..	..	1,487	1,403	1,427	1,526	1,357
South Australia ..	..	522	490	534	629	772
Western Australia ..	..	1,014	845	884	995	993
Tasmania ..	..	441	390	479	594	548
Northern Territory	..	37	50	18	11	11*
Commonwealth	..	12,508	11,507	12,859	13,963	15,679

* Year 1919. Returns for 1920 not available.

Compared with the population the above figures give the following results per 10,000 inhabitants:—

CONVICTIONS FOR SERIOUS CRIME PER 10,000 INHABITANTS, 1916 TO 1920.

(COMMONWEALTH.)

State.	1916.	1917.	1918.	1919.	1920.
New South Wales ..	33.1	28.9	32.7	36.1	37.2
Victoria.. ..	19.3	20.0	22.2	20.2	28.4
Queensland ..	21.7	20.5	20.4	21.1	18.1
South Australia ..	11.8	11.1	11.8	13.4	15.9
Western Australia ..	32.4	27.6	28.7	31.1	30.1
Tasmania ..	22.7	20.1	24.2	29.0	26.0
Northern Territory ..	77.8	103.1	37.0	23.6	23.6
Commonwealth ..	25.3	23.3	25.6	26.9	29.3

5. **Decrease in Crime, 1881–1920.**—The figures quoted in the preceding table shew that while during the last five years the rate of serious crime has increased somewhat, if the comparison be carried back to 1881 the position is seen to be more satisfactory. The rate of convictions at magistrates' courts per 10,000 of the population is given below for each of the years 1881, 1891, 1901, 1916, and 1920. Only the more serious offences particularised in the preceding sub-section, have been taken into consideration.

RATE OF CONVICTIONS FOR SERIOUS CRIME IN THE COMMONWEALTH, 1881 TO 1920.

Year.	Convictions per 10,000 Persons.
1881	69.3
1891	44.8
1901	29.1
1916	25.5
1920	29.3

The figures already quoted refer to total convictions, and in respect of individuals necessarily involve a considerable amount of duplication, especially in minor offences, such as petty larcenies, etc., in which the same offender appears before the court many times in the course of the year.

6. **Causes of Decrease in Crime.**—The statistics given above shew that there has been a considerable decrease in crime throughout Australia during the period dealt with. The results so far quoted are restricted entirely to the lower or magistrates' courts. There has also been a gratifying decrease in regard to offences tried at the higher courts, as will be seen later.

Attempts have been made to account for this decline: *e.g.*, advance in education, enlightened penological methods, etc. Much depends upon what is meant by education. Many classed in census statistics as "educated" can barely read and write. In this connexion, moreover, it ought not to be forgotten that collaterally with the introduction of ordinary intellectual education certain people have departed from their pristine virtues. In regard to the deterrent effect of punishment, it may be said that in respect of many offences, notably drunkenness, vagrancy, petty larcenies, etc., it appears to be almost negligible. In general, punishment has declined in brutality and severity, and has improved in respect of being based to a greater extent upon a scientific penological system, though in this latter respect there is yet much to be desired. Recent advances in penological methods will be referred to in a subsequent sub-section. Here it will be sufficient to remark that under the old régime, a prisoner on completion of a sentence in gaol was simply turned adrift on society, and in many cases sought his criminal friends, and speedily qualified for readmission to the penitentiary. Frequently he was goaded to this by mistaken zeal on the part of the police, who took pains to inform employers of the fact of a man having served a sentence in gaol. For a long time any assistance to

discharged prisoners was in the hands of private organizations, such as the Salvation Army Prison Gate Brigade, but in some of the States, and notably in New South Wales, the authorities themselves look after the welfare of discharged prisoners in the way of finding work, providing tools, etc. Improvements in the means of communication and identification have been responsible for some of the falling-off noticeable in the criminal returns, the introduction of the Bertillon system having contributed to certainty of identification. In his report for the year 1910 the Inspector-General of Police in New South Wales states that "criminals have a wholesome dread of the finger print system, and I have not the slightest doubt that it is one of the principal causes of the diminution of serious crimes." Part of the improvement may no doubt be referred also to the general amelioration in social conditions that has taken place during the last fifty years.

As will be seen from the following table the restrictions on the consumption of intoxicants during the course of the war has been responsible for a great falling off in convictions for drunkenness.

7. **Drunkenness.**—The number of cases of drunkenness and the convictions recorded in connexion therewith during the period 1916 to 1920 will be found in the following table:—

CASES AND CONVICTIONS.—DRUNKENNESS, 1916 TO 1920.

(COMMONWEALTH.)

State.	1916.		1917.		1918.		1919.		1920.	
	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.	Cases.	Convictions.
New South Wales	23,192	23,017	21,063	20,902	20,651	20,511	19,834	19,546	26,080	25,843
Victoria	11,316	6,049	7,576	4,101	5,987	3,049	6,237	3,000	7,154	3,834
Queensland	13,374	13,059	13,562	13,065	12,302	11,518	12,178	11,403	12,017	11,712
South Australia	3,451	3,433	3,097	3,072	3,308	3,298	3,197	3,171	3,463	3,448
Western Australia	5,045	5,009	4,623	4,598	4,058	4,020	3,612	3,595	4,222	4,185
Tasmania	488	480	415	407	433	426	435	474	536	530
Northern Territory	208	202	210	207	81	81	109	109	*109	*109
Commonwealth	57,074	51,249	50,545	46,352	46,820	42,903	45,652	41,298	53,581	49,661

* For 1919. Returns for 1920 not available.

The number of convictions is, as might naturally be expected, almost identical with the number of cases. Victoria, however, is an exception, but in this State it is explained that offenders are generally discharged on a first appearance, and no conviction is recorded, a similar procedure being also adopted in the case of those arrested on Saturday and detained in custody till Monday. The logic of excluding these cases from the list of convictions is certainly open to doubt.

The convictions for drunkenness per 10,000 of the population during each of the years from 1916 to 1920 are given hereunder:—

CONVICTIONS FOR DRUNKENNESS PER 10,000 INHABITANTS, 1916 TO 1920.

(COMMONWEALTH.)

State.	1916.	1917.	1918.	1919.	1920.
New South Wales	121.5	109.7	105.5	97.7	124.9
Victoria	42.8	29.1	21.4	20.4	25.4
Queensland	190.5	191.2	164.8	157.4	156.7
South Australia	77.7	69.5	73.0	67.7	70.1
Western Australia	160.1	150.3	130.6	112.5	127.0
Tasmania	24.7	21.0	21.5	23.1	25.2
Northern Territory	424.5	426.6	166.3	234.2	234.2
Commonwealth	103.6	93.7	85.3	79.5	92.6

The convictions for drunkenness taken by themselves are not an altogether satisfactory test of the relative sobriety of the inhabitants of each State, inasmuch as several important factors must be taken into consideration. The age and sex constitution of the people, for example, is by no means identical in each State, Western Australia having by far the largest proportion of adult males. Owing to the smallness of the population the figures for the Northern Territory are, of course, abnormal. The avocations of the people affect the result, since persons engaged in strenuous callings are, on the whole, more likely to indulge in alcoholic stimulants than those employed in less arduous ones. The distribution of the population is also a factor, the likelihood of arrest or summons for drunkenness obviously being greater in the more densely populated regions, and lastly, allowance must be made for the attitude of the magistracy, the police, and the public generally in regard to the offence. Due account also must be taken of the recent legislation dealing with the limitation of hours during which liquor may be sold in hotels.

It is not unusual to supplement statistics of drunkenness by furnishing also the relative consumption of alcoholic beverages. Deductions drawn therefrom will be very misleading if they fail to take into account also the consumption of non-intoxicating beverages such as tea and coffee, and the general habits of the people. Throughout the greater part of Europe, tea and coffee are consumed but sparingly, while Australia, as is well known, is one of the greatest tea-drinking countries of the world.

The following table shows the consumption of spirits, wine, and beer per head of the population in the Commonwealth during each year of the quinquennium 1917-21 :—

CONSUMPTION OF ALCOHOLIC BEVERAGES IN THE COMMONWEALTH, 1917-21.

Consumption per Head of Population.

Year.						
				Spirits.	Wine.	Beer.
				Imp. Galls.	Imp. Galls.	Imp. Galls.
1916-7	..	..	..	0.61	0.50	11.62
1917-8	..	..	..	0.50	0.50	11.92
1918-9	..	..	..	0.39	0.50	12.50
1919-20	..	..	..	0.45	0.50	13.39
1920-21	..	..	..	0.36	0.50	12.20

8. **Treatment of Drunkenness as Crime.**—Though the problem of the correct method of dealing with dipsomania is by no means an easy one, it seems fairly clear that the present plan of bringing offenders before magistrates, and subjecting them to the penalty of imprisonment or fine, has little deterrent effect, as the same offenders are constantly reappearing before the courts. Further, the casting of an inebriate into prison, and placing him in his weakened mental state in the company of professional malefactors, doubtless tends to swell the ranks of criminals, and certainly tends to lower his self-respect. Examination of the prison records in New South Wales some years ago disclosed the fact that over 40 per cent. of the gaol population had commenced their criminal career with a charge of drunkenness. During the last few years the dangers of moral contamination in this way have been more accurately appreciated, and a system of classification of prisoners has been adopted whereby the petty offender is as far as possible kept from association with the more evilly-disposed. The Comptroller-General of Prisons in Queensland stated in his Report for the year 1907 that "the drunken habit in many cases is merely one of many symptoms which jointly indicate the existence of a graver condition than simple habitual drunkenness."

9. Remedial Treatment of Inebriates.—Legislation has been passed in each State, providing for the commitment of inebriates to special Government institutions. The laws in the various States are as follows :—New South Wales, Inebriates Act 1912; Victoria, Inebriates Act 1915; Queensland, Inebriate Institutions Act 1896; South Australia, Inebriates Acts 1908, 1913, and 1920; Western Australia, Inebriates Acts 1912 and 1919; Tasmania, Inebriates Act 1885, Inebriate Hospitals Act 1892. Curative work was first undertaken by the Government of New South Wales in 1907. In most cases the institutes are connected with the gaols, and, naturally, custodial measures are still a strong feature in their management; nevertheless, the results of remedial measures have been encouraging. In Victoria an institute purporting to be wholly remedial was founded in 1907. It may be mentioned that there are private retreats in various places in the Commonwealth, but these are not officially subsidised or inspected.

10. Treatment of Habitual Offenders.—In New South Wales the Habitual Criminal Act of 1905 gives judges the power of declaring a prisoner, after a certain number of sentences, to be an habitual criminal, and as such to be detained until, in the opinion of the authorities, he is fit to be at large. At the end of 1920 there were 30 persons in prison under this Act, including 3 in the hospital for criminal insane. Since the passing of the Act, 83 males and 1 female have been declared to be habitual criminals. The Indeterminate Sentences Act came into force in Victoria in July, 1908, and up to the end of June, 1920, 452 prisoners had been released on probation or parole. Of this number, 216 were classed as habitual criminals, of whom 66 satisfactorily completed probation and were not again convicted, 85 were convicted and returned to prison, 61 were still on probation or on parole, and 7 died while on probation. Since the passing of the Act 635 persons have been dealt with under its provisions. At the 30th June, 1920, the number under indeterminate detention was 135. The provisions of the Habitual Criminals Amendment Act of 1907 were put into force in South Australia in 1909, and 23 criminals had been declared to be habitual offenders up to the end of 1920. Of these, 20 had been released after serving the indeterminate portion, and 3 were serving the definite portion of their sentence. The Criminal Code Amendment Act of 1914, which makes provision for the detention and control of habitual criminals, was assented to in Queensland on the 3rd December, 1914, but up to the end of 1920 no prisoners had been brought under its provisions. Naturally it will be some time before the full effect of these measures on the prevalence of crime can be estimated. The Comptroller-General of Prisons in New South Wales, states, however, that the system has exercised a wholesome deterrent effect on the criminal who is not a prisoner, while the Indeterminate Sentence Board in Victoria states that it has become impressed with the advantages which this form of sentence offers, both from a reformatory and deterrent standpoint, over the ordinary sentence. In Western Australia, under the Criminal Code Amendment Act of 1918, power is given to declare a prisoner after a certain number of convictions to be an habitual criminal. Six prisoners were under preventive detention in 1920, of whom 3 were habituals. During the period in which the Habitual Criminals and Offenders Act of 1907 (now Indeterminate Sentences Act 1921) has been in force in Tasmania, 103 men and 2 women have been released under its provisions, and the results, according to the Sheriff, have been satisfactory, only two prisoners having been reconvicted and sentenced to further imprisonment. Eleven male prisoners were released on parole in 1920.

11. Treatment of First Offenders.—In all the States and in New Zealand statutes dealing with first offenders have been in force for some years, the dates of passing the Acts being as follows :—New South Wales, 1894; Victoria, 1890, 1908, and 1915 (Crimes Act, sec. 340); Queensland, 1887; South Australia, 1887 and 1913; Western Australia, 1892; Tasmania and New Zealand, 1886. The method of procedure is practically the same in all cases, i.e., with regard to most first offenders the magistrate or judge is empowered to allow the offender to go free on recognisances being entered into for his good behaviour for a certain period. In practice, this humane law has been found to work excellently, very few of those to whom its provisions have been extended having been found to relapse into crime.

12. **Children's Courts.**—Special courts for the trial of juvenile offenders have been established in New South Wales, Victoria, Western Australia, Tasmania, and New Zealand within the last few years, while Children's Courts, although not under that name, are practically provided for by the State Children's Acts of 1895 and 1900 in South Australia. The object of these courts is to avoid, as far as possible, the unpleasant surroundings of the ordinary police court.

13. **Committals to Superior Courts.**—In a previous section it has been pointed out that comparisons of criminality based on a consideration of the total returns from magistrates' courts are somewhat inadequate, seeing that the figures include numbers of cases which are merely technical breaches of laws having in some instances a purely local significance. The committals to higher courts give a better basis of comparison, although even in this connexion allowance must be made for the want of uniformity in jurisdiction. The table below gives the number of committals in each year from 1916 to 1920, with the proportion of such committals per 10,000 of the population. The rates are shewn on a separate line.

COMMITTALS TO SUPERIOR COURTS, 1916 TO 1920.

(COMMONWEALTH.)

State.		1916.	1917.	1918.	1919.	1920.
New South Wales	{ No.	1,707	1,383	1,308	1,680	2,239
	{ Rate	9.0	7.3	6.7	8.4	10.8
Victoria	{ No.	552	495	406	575	795
	{ Rate	3.9	3.5	2.9	3.9	5.3
Queensland	{ No.	304	312	207	255	309
	{ Rate	4.4	4.6	3.0	3.5	4.1
South Australia	{ No.	71	82	79	74	123
	{ Rate	1.6	1.9	1.7	1.6	2.5
Western Australia	{ No.	141	126	96	127	112
	{ Rate	4.5	4.1	3.1	4.0	3.4
Tasmania	{ No.	42	40	37	55	72
	{ Rate	2.2	2.1	1.9	2.7	3.4
Northern Territory	{ No.	3	3	6	3	3
	{ Rate	6.3	6.2	12.3	6.4	7.1
Commonwealth	{ No.	2,820	2,441	2,139	2,769	3,653
	{ Rate	5.7	4.9	4.3	5.3	6.8

The above figures shew that the rate of committals for serious crime has increased by 19 per cent. during the last five years, but if the comparison be carried further back, it will be found that, as compared with the earlier years, there has been a considerable improvement. This will be evident from an examination of the following figures, which shew the rate of committals per 10,000 persons in Australia at various periods since 1861 :—

RATE OF COMMITTALS IN AUSTRALIA, 1861 TO 1920.

Year	..	..	..	..	1861.	1871.	1881.	1891.	1901.	1911.	1920.
Committals per 10,000 inhabitants	..	22	14	12	11	8	6	7			

The decline in proportion to population since 1861 has therefore been about 68 per cent.

§ 3. Superior Courts.

1. **Convictions at Superior Courts.**—The total number of convictions at superior courts, together with the rate per 10,000 of the population, is shewn below for each of the years 1916 to 1920 :—

CONVICTIONS AT SUPERIOR COURTS, 1916 TO 1920.

(COMMONWEALTH.)

State.		1916.	1917.	1918.	1919.	1920.
New South Wales	{ No.	815	661	622	762	1,027
	{ Rate	4.3	3.5	3.2	3.8	5.0
Victoria	{ No.	366	303	245	347	461
	{ Rate	2.6	2.2	1.7	2.4	3.0
Queensland	{ No.	266	226	193	254	302
	{ Rate	3.9	3.3	2.8	3.5	4.0
South Australia	{ No.	52	59	46	47	83
	{ Rate	1.2	1.3	1.0	1.0	1.7
Western Australia	{ No.	91	55	55	63	69
	{ Rate	2.9	1.8	1.8	2.0	2.1
Tasmania	{ No.	30	28	18	39	51
	{ Rate	1.5	1.4	0.9	1.9	2.4
Northern Territory	{ No.	1	1	..	..	..
	{ Rate	2.1	2.0	..	..	..
Commonwealth	{ No.	1,621	1,333	1,179	1,512	1,993
	{ Rate	3.3	2.7	2.3	2.9	3.7

The rate in 1901 was 4.6 per 10,000, and the decrease to the end of 1920 was, therefore, about 20 per cent.

In considering the above figures allowance must be made for the various factors enumerated in a preceding paragraph. Tasmania, it will be noted, shews the smallest proportion of serious crime, while the figures available shew that the island State is relatively the smallest consumer of alcoholic beverages. That a definite causal relation exists between the figures shewn by the respective tables is not, however, obvious.

2. **Offences for which Convictions were Recorded at Superior Courts.**—In the following table will be found a classification of the principal offences for which persons were convicted at the higher courts during each year of the period 1916 to 1920. Owing to lack of uniformity in the presentation of the returns for the several States the information is confined to the chief offences against the person only. In the case of Victoria the information is incomplete regarding the convictions on summons committals. The figures quoted refer to convictions in the Commonwealth during the period dealt with.

CONVICTIONS FOR SERIOUS CRIME, SUPERIOR COURTS, 1916 TO 1920.

(COMMONWEALTH.)

Offences.		1916.	1917.	1918.	1919.	1920.
Murder, and attempts at	.. ..	21	21	14	34	20
Manslaughter	.. ..	14	9	7	14	18
Rape, and attempts at	.. ..	15	15	11	3	7
Other offences against females	.. ..	78	79	75	66	69
" " " the person	.. ..	193	239	155	220	223
Total	.. ..	321	363	262	337	337

While the individual totals shew considerable fluctuations, the returns generally manifest considerable improvement. The general total of convictions for all offences against the person shews a decline since 1901 of nearly 22 per cent., and since 1915 of about 6 per cent.

3. **Capital Punishment.**—The table below gives the number of executions in each State during the period 1916 to 1920 :—

EXECUTIONS, 1916 TO 1920.
(COMMONWEALTH.)

State.	1916.	1917.	1918.	1919.	1920.
New South Wales	2	2	..	..	..
Victoria	2	..	2	..	..
Queensland .. ..	..	..	..	..	..
South Australia .. ..	..	..	..	1	1
Western Australia .. ..	..	..	..	..	..
Tasmania .. ..	..	..	..	..	..
Commonwealth	4	2	2	1	1

In the early days of the history of Australia the penalty of death was attached to a large number of offences, many of which at the present time would be dealt with in the lower or magistrates' courts. With the growth of settlement, and the general amelioration in social and moral conditions, the list was, however, considerably curtailed, and the existing tendency is practically to restrict death sentences to cases of murder. It may be remarked that in cases of rape, which is a capital offence in some of the Australian States, the penalty has been but sparingly inflicted during the last few years. Juries are reputed to be loth to convict on this charge, owing to the uncertainty whether sentence of death will be pronounced.

During the period 1861 to 1880 the annual average number of executions in the Commonwealth was nine, from 1881 to 1900 the average was six, for the period 1901 to 1910 the figure stood at four, while the average for the last quinquennium was two.

§ 4. Prisons.

1. **Prison Accommodation and Prisoners in Gaol.**—The table below shews the number of prisons in each State and the accommodation therein at the end of 1920 :—

PRISONS AND PRISON ACCOMMODATION, 1920.
(COMMONWEALTH.)

State.	Number of Prisons.	Accommodation in—		Prisoners at End of Year.
		Separate Cells.	Wards.	
New South Wales	26	2,232	..	1,128
Victoria	15	1,485	672	700
Queensland	12	586	380	275
South Australia	13	759	466	229
Western Australia	23	458	909	167
Tasmania	2	100	..	63
Northern Territory (a) ..	3	3	62	3
Commonwealth	94	5,623	2,489	2,565

(a) Year 1919. Returns for 1920 not available.

The figures refer to prisoners under sentence, and are exclusive of aborigines

The number of prisoners in gaol at the 31st December in each of the years 1916 to 1920 is given below. As stated above, the figures refer to prisoners under sentence, and are exclusive of aborigines. A separate line is added in each instance, shewing the proportion per 10,000 of the population.

PRISONERS IN GAOL, 1916 TO 1920.

(COMMONWEALTH.)

State.		1916.	1917.	1918.	1919.	1920.
New South Wales	{ Number..	1,451	1,292	959	941	1,128
	{ Proportion	7.7	6.8	5.0	4.7	5.5
Victoria	{ Number..	773	689	588	665	700
	{ Proportion	5.5	4.9	4.1	4.5	4.6
Queensland	{ Number..	319	260	255	279	275
	{ Proportion	4.7	3.8	3.6	3.9	3.7
South Australia	{ Number..	237	268	233	222	229
	{ Proportion	5.4	6.1	5.2	4.7	4.7
Western Australia	{ Number..	207	195	185	158	167
	{ Proportion	6.6	6.4	6.0	4.9	5.1
Tasmania	{ Number	49	46	55	72	63
	{ Proportion	2.5	2.4	2.8	3.5	3.0
Northern Territory	{ Number..	14	12	7	3	3
	{ Proportion	29.4	24.7	14.4	6.4	7.1
Commonwealth	{ Number..	3,050	2,762	2,282	2,340	2,565
	{ Proportion	6.2	5.6	4.5	4.5	4.8

From the preceding table it will be seen that the proportion to population of prisoners in gaol has fallen by 23 per cent. during the last five years, but, if the comparison be carried farther back, the position is seen to be more favourable, the prisoners in gaol in the Commonwealth numbering as much as 16 per 10,000 of the population in 1891.

2. Improvement of Penological Methods.—During recent years Australia, in common with most other civilised countries, has introduced considerable modifications and improvements in methods of prison management. Under the old régime punishment partook more or less of the character of reprisal for wrongdoing, and the idea of constituting the prison as a reformatory agency was in the background. But in recent years there has been an earnest attempt at effecting a moral reformation in the unfortunates who lapse into crime. This aspect of prison management has been specially prominent in New South Wales. A short account of the re-organization of the prison system in this State appears in preceding Year Books (see No. V., p. 922), but considerations of space preclude its repetition here. At the present time it is found that good results have followed the principles of scientific classification and restricted association of prisoners, together with the provision of separate institutions for the treatment of inebriates. Special efforts are put forward to provide reproductive work for prisoners, and no capable able-bodied man is engaged in labour that demeans him, but on the other hand is encouraged to take pride and pleasure in good work. The Parramatta gaol, which dates from 1842, was closed on the 15th September, 1918, and to provide for the prisoners transferred therefrom the gaol at Young was proclaimed as a place of detention for the treatment of habitual criminals in the indeterminate stage. Short sentence prisoners were sent to Tamworth gaol, and longer sentence men were accommodated in Bathurst and Maitland gaols and the State penitentiary at Long Bay. At Long Bay there is a well-designed reformatory institution for females, providing for effective classification, and a penitentiary used as a distributing centre and a place of detention for short-term prisoners from the metropolis. Goulburn gaol is used for first offenders. The first-class minor gaols at Albury, Armidale, Broken Hill, Grafton, and Maitland are convenient centres for the reception of country prisoners, and for the treatment of special cases. There are also several second-class minor gaols and police gaols where short-sentenced prisoners from the surrounding districts are dealt with. The system of carrying on afforestation by prison labour, somewhat after the

manner of that in vogue for several years in New Zealand, has been introduced, and in 1911 a site near Tuncurry, on the Manning river, was selected for the purpose of initiating the scheme. Pine trees of various kinds were planted, and at the end of 1920 over 1,000,000 trees, some exceeding 10 feet in height, were well established. The daily average number of prisoners in 1920 was 18. So far the scheme appears to be a great success, the prisoners being healthy, cheerful, well-behaved, and industrious. Each prisoner has his own comfortable hut, where he takes his meals and sleeps, and may, if he so desires, write his letters. There are no armed or night guards at the camp. During the year 1914 a property of 107 acres was purchased, near the Emu Plains railway station, for the purpose of establishing a prison farm, and this was opened in April, 1915, with ten prisoners. This institution was disestablished in 1916, when it was taken over by the Department of Agriculture, and beyond selecting the prisoners for work on the farm, the Prisons Department had no further responsibility. The farm was again transferred to the control of the Prisons Department in November, 1917. Accommodation is provided for 42 prisoners, each of whom occupies a roomy, comfortable hut. The inmates consist principally of first offenders under the age of 25 years, and they receive a practical training in general farm work. The daily average in 1920 was 33. That there is some connexion between mental and physical health and crime is proved by the condition in which many persons are received into gaol. In a large number of instances prisoners are found to be suffering from contagious diseases. Under the Prisoners Detention Act, and its amendment of 1918, such persons may be kept in gaol until cured. A further reform, introduced in 1915, was the provision of the Shaftesbury Inebriate Institution for the treatment of non-criminal inebriates. In 1916 accommodation was provided for voluntary paying guests who wish to undergo treatment. A portion of the establishment was set apart for the special treatment of returned soldiers convicted of minor offences, who on medical grounds are not suitable for farming or afforestation work. Physically capable men over the age of 25 years were provided for at Tuncurry, and younger men at Emu Plains prison farm. A special wing of Goulburn gaol was set apart for general treatment under returned soldier officers. More serious and less hopeful cases were sent to Bathurst and Maitland gaols. Altogether 1,014 soldiers were received, of whom 363 were first offenders, the majority coming from the minor courts.

During 1920 further improvements were effected in the application of progressive ideas to prison treatment. The monotony of non-working hours at week-ends was relieved by the provision of concerts and lectures at the principal gaols, and more open air exercise was allowed, particularly on Saturday afternoons and Sundays. Greater facilities were also provided for the reading of books and magazines, and a wider range of literature was made available.

Special attention is drawn by the Comptroller-General to the valuable work performed by the Prisoners' Aid Association in helping prisoners during the period of detention and after discharge.

In 1902 the system of finger-print identification of criminals was introduced, and by the year 1903 bureaux had been established in the various States for the exchange of records. Very successful results have attended the introduction of the system.

It is stated that about 46 per cent. of the prisoners received into gaol in 1920 were not natives of New South Wales.

Space will not permit of more than a passing reference to the improvements brought about in prison management in the other States. In Victoria there is an excellent system of classification and allocation of prisoners in various grades to different gaols, while at the important penal establishment at Pentridge a careful segregation into several classes is carried out. In common with the other States the latest humane methods of accommodation and prison treatment have for some time been employed. An afforestation camp known as McLeod Settlement, French Island, was opened in 1916, and on the 30th June, 1920, there were 28 inmates. Since the establishment of the Camp about 2,300,000 trees have been planted by the prisoners for the Forests Department. It is stated that the experiment has resulted in improvement, both in demeanour and physique of prisoners, and it is hoped that in many cases it will be conducive to a return to honest citizenship. A prison farm has also been established about three miles from the prison at Castlemaine, and the inmates are taken to and fro daily. The number in confinement on the 30th June, 1920, was 51. Accommodation has been provided for housing a certain number of prisoners on the farm site. The orchard planted in connexion with the farm contains about 1,000 fruit trees. Provision

has been made for practical instruction in carpentering and other work which will help in securing employment for prisoners on release. During the year, 92 male and 32 female cases under the Venereal Diseases Act were received, of whom 2 were treated at Ballarat and the balance at the metropolitan prisons. The discharges after certificate by the Health Department numbered 89. Curative treatment is given during the period of incarceration and, if necessary, is continued afterwards outside the prison at places gazetted by the Health Department. Provision is made for dental attention in the case of prisoners requiring it; free treatment being given when the prisoner is unable to pay or to make arrangements for payment.

Queensland prisons have been considerably modernised during recent years. Amongst the principal reforms may be mentioned the reduction of the period of separate treatment undergone by prisoners sentenced to hard labour or penal servitude, a remodelling of the remission clauses and the provision of more liberal privileges in the way of correspondence and visits by friends. Electric light has been installed in the Brisbane prison, and prisoners are allowed to read up to 8 o'clock each evening. Careful classification of prisoners is carried out. Under the provisions of the Health Act venereal cases are detained until danger of infection has ceased. St. Helena Penal Establishment, which hitherto has been used for the accommodation of prisoners serving sentences of twelve months and upwards, is being converted into a farm colony. Well-conducted long-time prisoners will be sent to this establishment for special treatment during the latter stages of their sentences while qualifying for release. The regulations will be modified, as deemed expedient, in order to bridge the gulf between confinement and liberty. It is also intended to afford better facilities for the instruction of prisoners in trades, which will afford them the means of earning a livelihood on their release, as, naturally, men and women in this position will be less likely to relapse into crime.

Unusual circumstances have combined to keep crime at a low point in South Australia. In the first place there was never any transportation of criminals to the State, while in the earlier years of its history South Australian law breakers were transported elsewhere. The discovery of gold in the neighbouring colonies was also responsible for the drawing away of turbulent spirits who might later on have caused trouble. The present system of gaol administration was drafted mainly on English and European lines by the late W. R. Boothby, C.M.G., and has since been as far as possible adapted to modern penological procedure. At the Yatala Labor Prison, which is the largest in the State, the number in confinement on the 31st December, 1920, was 114. The prisoners are graded into three classes—first offenders, second offenders, and old offenders, the various classes being kept apart. The Adelaide gaol, which had 70 prisoners in confinement at the end of 1920, is the next in point of importance. It is proposed to establish an afforestation camp prison at the Bangham Forest Reserve on similar lines to that at Tuncurry in New South Wales. Excellent work for the benefit and assistance of discharged prisoners is performed by the Prisoners' Aid Association.

A Royal Commission in 1911 recommended the adoption of various reforms in connexion with the prison system of Western Australia. The bulk of these were carried out, and included, amongst other things, an extension of the principle of separate treatment, improvement in prisoners' dietary scale, more satisfactory arrangements in regard to remission of sentences, and improvements in regard to hours of labour, leave of absence, etc., for the staff. Amongst other improvements recently introduced may be mentioned the grant of an eight hours' day to officers, enlargement and improved hygiene of cells, additional library facilities, assistance to discharged prisoners by provision of railway passes and monetary aid, appointment of committees to look after the welfare of discharged prisoners, and the remodelling of the "mark" system. The military method of control at Rottnest Island, coupled with considerable privileges to well-conducted prisoners, has proved very successful. Under the Prisons Act Amendment Act of 1918 a portion of Fremantle Prison was set aside as a reformatory prison in 1919, and first offenders are kept separate from other prisoners.

The daily average number of prisoners in confinement in Tasmanian gaols during the year 1920 was about 63, the bulk of whom were confined in the penal establishment at Hobart. There were no prisoners in the country gaols. The completion of alterations to the Hobart gaol will facilitate the segregation of youthful offenders, and afford opportunities for teaching trades. At present these first offenders are placed in the House of Correction and work at gardening and other tasks apart from the ordinary prisoners.

§ 5. Civil Courts.

1. Lower Courts.—The transactions of the lower courts on the civil side during each of the last five years are given in the table hereunder. As pointed out previously the jurisdiction of the courts is by no means uniform in the various States.

LOWER COURTS.—CIVIL CASES, 1916 TO 1920.

(COMMONWEALTH.)

State.		1916	1917.	1918.	1919.	1920.
New South Wales ..	Cases No.	35,724	31,172	32,135	31,847	34,475
	Amount £	101,530	88,576	94,026	92,853	111,531
Victoria ..	Cases No.	38,573	32,187	31,870	34,841	38,300
	Amount £	170,086	143,469	149,755	155,009	158,198
Queensland	Cases No.	14,094	11,867	10,957	9,289	10,428
	Amount £	64,502	51,302	53,710	56,555	58,476
South Australia ..	Cases No.	16,505	14,579	13,619	14,600	18,030
	Amount £	50,515	42,774	52,847	58,647	73,505
Western Australia..	Cases No.	15,776	13,798	11,387	11,990	12,306
	Amount £	51,050	44,937	40,243	43,601	46,765
Tasmania	Cases No.	4,879	4,611	4,489	4,325	4,954
	Amount £	30,739	29,080	28,769	30,537	34,329
Commonwealth						
	Cases No.	125,551	108,214	104,457	106,892	118,493
	Amount £	468,422	400,138	419,350	437,202	482,804

The figures just given represent the returns from Petty Sessions Courts in New South Wales and Victoria, the Petty Debts Courts in Queensland, the Local Courts of South Australia and Western Australia, and the Courts of Requests in Tasmania.

2. Superior Courts.—In the next table will be found the transactions on the civil side in the Superior Courts during each of the years 1916 to 1920.

The New South Wales returns refer to the total amounts sued for, and not the sums actually awarded after trial in the District Courts, and are exclusive of judgments signed in the Supreme Court for which the amount is not available.

SUPERIOR COURTS.—CIVIL CASES, 1916 TO 1920.

(COMMONWEALTH.)

State.		1916.	1917.	1918.	1919.	1920.
New South Wales ..	Causes No.	902	862	846	933	1,148
	Amount £	a290,642	a274,646	a259,902	a333,539	a377,419
Victoria ..	Causes No.	536	573	583	661	760
	Amount £	104,965	88,177	108,919	100,200	122,840
Queensland	Causes No.	124	126	184	172	225
	Amount £	20,335	27,169	19,994	44,567	19,707
South Australia ..	Causes No.	14	13	18	20	39
	Amount £	2,482	..	4,518	3,491	16,938
Western Australia..	Causes No.	348	108	141	138	174
	Amount £	36,042	14,639	30,100	26,757	28,890
Tasmania	Causes No.	308	326	329	237	145
	Amount £	17,539	20,481	17,453	29,808	14,507
Commonwealth						
	Causes No.	2,232	2,008	2,101	2,161	2,491
	Amount £	472,005	425,112	440,886	538,362	580,301

(a) Exclusive of judgments signed, Supreme Court, the amount not being recorded.

3. **Divorces and Judicial Separations.**—The number of divorces and judicial separations in each State during the period 1916 to 1920 is shewn below. The figures refer in the case of divorces to decrees made absolute in each year.

DIVORCES AND JUDICIAL SEPARATIONS, 1916 TO 1920.

(COMMONWEALTH.)

State.	1916.		1917.		1918.		1919.		1920.	
	Divorces.	Judicial Separations.	Divorces.	Judicial Separations.	Divorces.	Judicial Separations.	Divorces.	Judicial Separations.	Divorces.	Judicial Separations.
New South Wales ..	359	12	383	13	350	11	427	7	556	11
Victoria ..	206	1	202	..	233	3	346	2	373	2
Queensland ..	22	..	16	3	24	2	25	1	45	1
South Australia ..	15	..	20	1	17	..	30	..	32	2
Western Australia ..	13	..	24	..	63	..	37	..	27	..
Tasmania ..	2	..	7	..	4	..	6	2	18	..
Northern Territory ..	..	..	..	..	..	..	..	..	..	..
Commonwealth ..	617	13	652	17	721	16	871	12	1,051	16

The average annual number of divorces and judicial separations in the Commonwealth at decennial periods from 1871 to 1920 is as follows :—

DIVORCES AND JUDICIAL SEPARATIONS, 1871 TO 1920.

	1871-1880.	1881-90.	1891-1900.	1901-10.	1911-20.
Commonwealth ..	29	70	358	401	719

The bulk of the divorces and judicial separations refer, as the table shews, to New South Wales and Victoria, the Acts of 1899 and 1889 in the respective States having made the separation of the marriage tie comparatively easy. In some statistical works it is customary to compare the divorces in any year with the marriages in the same year. The comparison is, however, quite valueless, as there is no necessary connexion between the figures.

4. **Probates.**—The number of probates and letters of administration granted, together with the value of the estates concerned, is shewn below for each State for the period 1916 to 1920 :—

PROBATES AND LETTERS OF ADMINISTRATION, 1916 TO 1920.

(COMMONWEALTH.)

State.		1916.	1917.	1918.	1919.	1920.
New South Wales	{ Number	5,336	6,498	6,877	7,188	5,737
	{ Value £	11,637,910	11,923,328	11,827,552	17,131,131	12,265,044
Victoria ..	{ Number	5,448	5,835	6,935	7,404	5,837
	{ Value £	8,917,481	9,486,584	11,009,294	13,844,186	14,672,239
Queensland ..	{ Number	967	841	959	1,122	1,027
	{ Value £	3,041,514	2,796,692	2,335,843	3,733,964	3,594,844
South Australia ..	{ Number	1,661	1,946	2,921	2,819	1,844
	{ Value £	2,031,206	3,188,871	4,760,203	3,470,000	3,831,914
Western Australia ..	{ Number	957	1,176	1,574	1,353	948
	{ Value £	1,699,297	1,119,024	1,193,841	2,451,828	1,438,192
Tasmania ..	{ Number	423	513	435	564	517
	{ Value £	871,950	844,276	928,317	1,390,836	1,095,536
Commonwealth ..	{ Number	14,792	16,809	19,101	19,950	15,910
	{ Value £	23,249,358	29,358,775	32,055,055	42,021,945	36,897,769

5. **Bankruptcies.**—The returns in bankruptcy during each of the last five years are given in the following table.

For several reasons comparisons drawn from the figures in the following table are of little value. In the first place, the statements of assets and liabilities are notably

unsatisfactory, particularly in regard to the former. Then, again, there is wide dissimilarity in regard to the laws in force in the various States and the method of procedure thereunder in connexion with bankruptcy. Further, there are no means of knowing how many persons in each State who were in a bankrupt condition made private arrangements with their creditors either personally or by intervention of a solicitor. The figures quoted in the table exclude private arrangements in Victoria and South Australia, and the liquidations and compositions in Queensland and Tasmania.

BANKRUPTCIES, 1916 TO 1920.

(COMMONWEALTH.)

State.		1916.	1917.	1918.	1919.	1920.
New South Wales	Number ..	360	301	264	316	344
	Liabilities £	383,448	227,663	221,928	323,222	204,594
	Assets £	303,893	208,093	115,776	189,920	139,550
Victoria	Number ..	337	222	243	207	186
	Liabilities £	213,989	152,338	131,247	184,041	154,658
	Assets £	127,730	94,390	77,089	130,328	53,229
Queensland	Number ..	181	137	170	144	118
	Liabilities £	42,272	81,148	35,837	68,291	73,853
	Assets £	30,785	29,084	11,694	26,863	57,904
South Australia	Number ..	139	108	91	59	60
	Liabilities £	160,601	122,026	137,469	78,888	81,610
	Assets £	151,332	79,810	109,641	63,724	54,502
Western Australia	Number ..	34	56	23	31	25
	Liabilities £	52,345	40,588	9,559	23,958	46,381
	Assets £	52,024	44,829	4,010	21,190	41,875
Tasmania	Number ..	1	2	1	..	..
	Liabilities £	144	1,255	912	..	..
	Assets £	20	5	118	..	..
Northern Territory	Number ..	1	..	..	1	..
	Liabilities £	96	..	..	115	..
	Assets £	306	..	..	7	..
Commonwealth	Number ..	1,053	826	792	758	733
	Liabilities £	852,895	631,028	536,952	678,515	561,096
	Assets £	666,090	456,211	318,328	432,032	347,060

6. **High Court of Australia.**—Under the provisions of section 71 of the Commonwealth Constitution Act, the judicial power of the Commonwealth is vested in a Federal Supreme Court, called the High Court of Australia, and in such other courts as the Parliament creates or invests with federal jurisdiction. The Federal High Court possesses both original and appellate jurisdiction. The powers of the court are defined in Chapter III. of the Constitution Act and in the Judiciary Acts of 1903–20. At present the Court consists of a Chief Justice and six other judges. Sittings of the Court are held in the capitals of the various States as occasion may require. The following statement shews the transactions of the High Court for the quinquennium 1916–20 :—

COMMONWEALTH HIGH COURT TRANSACTIONS, 1916 TO 1920.

Items.	1916.	1917.	1918.	1919.	1920.
I. ORIGINAL JURISDICTION.					
Number of writs issued ..	141	106	76	93	123
Number of causes entered for trial ..	14	18	8	8	20
Verdicts for plaintiffs ..	7	6	4	3	6
Verdicts for defendants ..	3	5	1	..	5
Otherwise disposed of ..	60	47	10	5	31
Amount of judgments ..	£4,479	£6,025	£3,463	£1,730	£6,907

II. APPELLATE JURISDICTION.

Number of appeals set down for hearing	67	72	67	54	65
Number allowed ..	23	31	33	20	20
Number dismissed ..	24	33	27	25	31
Otherwise disposed of ..	10	8	7	9	14

III. AMOUNT OF FEES COLLECTED.

Amount in each year ..	£756	£619	£708	£502	£675
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During the year 1920 the Court dealt also with other matters as follows :—

Appeals from Assessments under the Taxation Assessment Acts ..	27
Special cases stated for the opinion of the Full Court	22
Applications for Prohibition	3
Applications under the Trading with the Enemy Act	8

7. Commonwealth Court of Conciliation and Arbitration.—A more or less detailed statement regarding the operation of this Court, which was established under the provisions of the Commonwealth Conciliation and Arbitration Act of 1904-20 will be found in section XXVII.

§ 6. Cost of Administration of Justice.

The table below shews the expenditure from Consolidated Revenue during each of the last five years in connexion with the administration of justice in each of the States. Expenditure on police and prisons has been separately shewn. With regard to the figures quoted for "other" expenditure, a slight allowance has to be made for the fact that some extraneous expenditure has been included which it was found impossible to disentangle from the total, but the amount is in no instance large.

EXPENDITURE ON JUSTICE, 1916 TO 1920.

(STATES.)

State.		1916.	1917.	1918.	1919.	1920.
		£	£	£	£	£
New South Wales ..	Police	649,093	709,649	722,754	977,506	1,101,767
	Gaols	91,913	90,633	87,375	92,781	113,882
	Other	287,419	276,722	277,805	309,632	370,061
Victoria	Police	356,885	371,413	397,025	490,016	577,407
	Gaols	59,614	55,027	54,328	61,937	75,986
	Other	165,789	163,381	166,946	193,481	227,190
Queensland	Police	322,422	337,259	346,802	407,480	476,153
	Gaols	30,803	33,626	35,346	36,802	40,190
	Other	140,643	128,328	124,763	140,374	149,068
South Australia ..	Police	127,632	136,158	151,090	159,258	197,157
	Gaols	22,062	22,040	23,063	27,381	31,940
	Other	36,854	39,589	41,124	60,784	52,500
Western Australia ..	Police	125,446	136,752	136,295	171,832	186,717
	Gaols	22,321	22,104	23,939	28,669	30,417
	Other	79,510	75,184	71,787	83,546	97,779
Tasmania	Police	47,320	49,448	54,960	66,940	79,372
	Gaols	7,013	6,619	6,418	8,274	9,774
	Other	22,190	21,223	21,407	29,289	33,322
Northern Territory ..	Police	10,260	10,210	10,200	11,435	12,970
	Gaols	2,875	2,972	3,043	2,663	3,857
	Other	2,744	1,991	2,196	1,925	3,396
Commonwealth ..	Police	1,639,058	1,750,889	1,819,126	2,284,467	2,631,543
	Gaols	236,591	233,021	234,017	258,607	306,046
	Other	735,149	706,398	706,028	819,031	933,316

The rise in expenditure during the last few years was due chiefly to increases in wages and salaries and heavier outlay on stores and supplies.

With the exception of that of the Northern Territory, the expenditure shewn in the foregoing table is that incurred by the State Governments only, and does not include expenditure in connexion with the Federal High Court, which is shewn hereunder for the period 1915-16 to 1920-21.

EXPENDITURE ON FEDERAL HIGH COURT, 1915-16 TO 1920-21.

Year.	Amount.	Year.	Amount.
	£		£
1915-16	31,447	1918-19	30,337
1916-17	31,780	1919-20	34,370
1917-18	31,352	1920-21	34,669

Other items of federal legal expenditure also not included in the table are :—Court of Conciliation and Arbitration £9,112, Crown Solicitor £17,879, and Secretary's office, £15,558. Excluding Patents and Copyrights, the total expenditure by the federal law authorities for the year 1920–21 was £89,268.

For the purposes of comparison the figures in the first table above have been reduced to a population basis, and the results are given in the table following :—

EXPENDITURE ON JUSTICE PER INHABITANT, 1916 TO 1920.

(STATES.)

State.		1916.	1917.	1918.	1919.	1920.
		<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
New South Wales	{ Police	6 10	7 5	7 5	9 9	10 8
	{ Gaols	1 0	0 11	0 11	0 11	1 1
	{ Other	3 0	2 11	2 10	3 1	3 7
Victoria	{ Police	5 1	5 3	5 7	6 8	7 8
	{ Gaols	0 10	0 9	0 9	0 10	1 0
	{ Other	2 3	2 4	2 4	2 8	3 0
Queensland	{ Police	9 5	9 10	9 11	11 3	12 9
	{ Gaols	0 11	1 0	1 0	0 11	1 1
	{ Other	4 1	3 9	3 7	3 10	4 0
South Australia	{ Police	5 9	6 2	6 8	6 10	8 1
	{ Gaols	1 0	1 0	1 0	1 2	1 4
	{ Other	1 8	1 9	1 10	2 7	2 2
Western Australia	{ Police	8 0	8 11	8 10	10 9	11 4
	{ Gaols	1 5	1 5	1 7	1 10	1 10
	{ Other	5 1	4 11	4 8	5 3	5 11
Tasmania	{ Police	4 10	5 1	5 7	6 6	7 7
	{ Gaols	0 9	0 8	0 8	0 10	0 11
	{ Other	2 3	2 2	2 2	2 10	3 2
Northern Territory	{ Police	43 2	42 1	41 11	49 2	61 7
	{ Gaols	12 1	12 3	12 6	11 5	18 4
	{ Other	11 6	8 2	9 10	8 3	16 1
Commonwealth	{ Police	6 8	7 1	7 3	8 9	9 10
	{ Gaols	0 11	0 11	0 11	1 0	1 2
	{ Other	3 0	2 10	2 10	3 2	3 6

Owing to the smallness of the white population, large area to be policed, and cost of supplies, transport, etc., the figures for the Northern Territory must necessarily appear somewhat abnormal.

The total expenditure in the Commonwealth in connexion with the administration of justice in the various States has risen from 10s. per inhabitant in 1901 to 14s. 6d. in 1920. Police expenditure has increased by 4s. 1d. per head, the average for gaols is identical in each year, while the expenditure on courts and the remaining machinery of justice has increased by 5d. per head during the same period. Increased salaries and allowances, and the heavier cost of materials and equipment, were responsible for the rise in the rate per head during the last few years.

SECTION XXIV.

PUBLIC BENEVOLENCE.

§ 1. Introductory.

1. **General.**—Charity and charitable effort in Australia may be classified under three headings, viz. :—(a) State; (b) public; (c) private. To the first belong all institutions wholly provided for by the State, such as the principal lunatic asylums in the various States, the Government hospitals in Western Australia, and the Government asylums for the infirm in New South Wales. The second class comprises public institutions of two kinds, viz. :—(i) those partially subsidised by the State or State endowed, but receiving also private aid, and (ii) those wholly dependent upon private aid. To the former division belong such institutions as the principal metropolitan hospitals. In the latter are included institutions established and endowed by individuals for the benefit of the needy generally. All charitable movements of a private character are included in the third group. A more or less accurate statistical account is possible in classes (a) and (b), but in regard to (c) complete tabulation is, for obvious reasons, impossible.

No poor-rate is levied in Australia, and Government aid without return is required only for the aged and disabled. Moreover, although Old-age Pensions, Invalid Pensions, and Maternity Allowances are paid by the Commonwealth, the payments are looked upon rather in the light of a citizen's right than as a charity. Reference to these matters will be found in Section xxxi., *Miscellaneous*; § 4 and 5.

From time to time relief funds have been organised for famine-stricken territories (e.g., China, India, etc.), or for places where plague, flood, fire, or earthquake has shewn the need of urgent relief. Special funds were also raised for persons disabled or bereaved through war. Complete statistical information in regard to these forms of charity is not, however, available. It may be mentioned that the daily Press frequently accepts the duty of collectorship in charity appeals. In regard to subscriptions to the various patriotic funds which have been instituted in consequence of the war, the total for Australia, up to 31st December, 1919, has been estimated to exceed £12,500,000 sterling.

§ 2. The Larger Charities of Australia.

1. **Hospitals.**—All of the State capitals have several large and well-equipped hospitals, and there is at least one in every important town. In large centres there are hospitals for consumptives, women, children, infectious diseases, incurables, etc. The number of hospitals in Australia, with the admissions, patients treated, deaths, and expenditure, is shewn in the following table. Only general hospitals are tabulated, since the working of "special" institutions is not properly comparable with those which treat every class of case.

HOSPITALS IN THE COMMONWEALTH, 1916 TO 1920.

Particulars.	1916.	1917.	1918.	1919.	1920.
Number of institutions ..	391	399	393	393	393
Number of beds ..	15,811	16,763	17,000	17,390	17,890
Admissions during year ..	166,588	164,889	174,379	193,920	202,053
Indoor patients treated ..	176,279	174,387	184,176	202,929	211,332
Deaths ..	13,128	11,885	12,494	15,758	14,475
Expenditure ..	£ 1,351,160	1,396,361	1,543,162	1,798,297	2,099,601

In addition to those admitted to the institutions there are large numbers of out-patients. The exact number of these cannot be given, but a rough estimate of distinct cases places the total at about 300,000.

Fuller details of hospital statistics are given for 1920 in the tables below, the States and Northern Territory of the Commonwealth being shewn separately :—

GENERAL HOSPITALS.—NUMBER, STAFFS, AND ACCOMMODATION OF HOSPITALS IN THE COMMONWEALTH, 1920.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter. (a)	C'wealth.
Number of Hospitals—								
Government ..	4	52	8	10	23	2	5	393
Other ..	152		84	19	29	10		
Total ..	156	52	87	29	52	12	5	393
Medical Staff—								
Males ..	948	96	206	113	60	21	1	1,464
Females ..			12	5				
Total ..	948	96	218	120	60	21	1	1,464
Nursing Staff and Attend-								
ants—								
Males ..	91	13	296	88	96	2	3	589
Females ..	2,312	893	1,244	569	574	184	7	5,783
Total ..	2,403	906	1,540	657	670	186	10	6,372
Accommodation—								
Number of dormitories,								
etc. ..	1,057	428	558	213	227	125	11	2,619
Capacity in cubic feet ..	5,160,944	4,942,279	4,014,372	1,693,943	2,119,369	887,109	60,912	21,879,128
Number of beds etc. ..	7,022	3,570	3,616	1,348	1,690	622	22	17,890
Cubic feet to each bed ..	1,162	1,384	1,110	1,257	1,431	1,426	3,000	1,223

(a) Year ended 30th June, 1919.

In addition to the accommodation provided in the ordinary wards, a considerable amount of accommodation for certain classes of cases is furnished in out-door or verandah sleeping places. Full particulars are not available.

GENERAL HOSPITALS.—PATIENTS TREATED IN HOSPITALS IN THE COMMONWEALTH, 1920.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter. (a)	C'wealth.
Indoor Relief: Distinct								
Persons Treated—								
Males ..	47,972	19,291	28,254	6,973	9,466	4,692	258	116,906
Females ..	43,796	15,716	17,748	6,035	6,298	4,695	138	94,426
Total ..	91,768	35,007	46,002	13,008	15,764	9,387	396	211,332
Inmates at beginning of								
Year—								
Males ..	2,403	1,184	1,368	488	582	232	19	6,276
Females ..	2,041	1,013	802	288	355	222	5	4,726
Total ..	4,444	2,197	2,170	776	937	454	24	11,002
Admissions and Re-admis-								
sions during Year—								
Males ..	45,569	18,107	26,886	7,580	8,884	4,460	229	111,715
Females ..	41,755	14,703	16,946	6,385	5,943	4,473	133	90,338
Total ..	87,324	32,810	43,832	13,965	14,827	8,933	362	202,053

(a) Year ended 30th June, 1919.

GENERAL HOSPITALS.—PATIENTS TREATED IN HOSPITALS IN THE COMMONWEALTH, 1920—*continued.*

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter. (a)	C'wealth
Discharges—Recovered :								
Males	31,348	15,196	24,174	4,646	4,020	4,043	203	83,630
Females	32,518	12,878	15,405	4,471	3,488	4,150	125	73,035
Total	63,866	28,074	39,579	9,117	7,508	8,193	328	156,665
Relieved :								
Males	8,898	(b)	(b)	1,512	3,586	(b)	..	(c)
Females	5,656	(b)	(b)	1,079	1,873	(b)	..	(c)
Total	14,554	(b)	(b)	2,591	5,459	(b)	..	(c)
Unrelieved :								
Males	1,525	64	531	662	345	101	..	3,228
Females	1,126	80	383	325	222	73	..	2,209
Total	2,651	144	914	987	567	174	..	5,437
Not stated :								
Males .. ..	..	826	271	34	..	14	..	1,145
Females .. ..	..	560	181	74	..	10	..	825
Total .. ..	..	1,386	452	108	..	24	..	1,970
Deaths—								
Males	3,462	1,937	1,808	713	882	281	16	9,099
Females	2,248	1,183	917	443	376	206	3	5,376
Total	5,710	3,120	2,725	1,156	1,258	487	19	14,475
Inmates at end of Year —								
Males	2,739	1,268	1,470	501	633	253	24	6,888
Females	2,248	1,015	862	281	339	256	17	5,018
Total	4,987	2,283	2,332	782	972	509	41	11,906
Average Daily Number Resident—								
Males	5,466	2,237	2,440	505	652	239	20	12,544
Females				371	374	233	7	
Total	5,466	2,237	2,440	876	1,026	472	27	12,544

(a) Including relieved.

(b) Included in recovered.

(c) Not available.

(d) Year ended 30th June, 1919.

The revenue and expenditure of the institutions were as follow :—

GENERAL HOSPITALS.—REVENUE AND EXPENDITURE, 1920.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	N. Ter. (a)	C'wealth.
Revenue—	£	£	£	£	£	£	£	£
Fees of patients, etc.	132,230	53,178	46,255	28,029	26,679	20,387	652	317,410
Government grants	458,818	60,101	222,902	96,188	105,530	43,949	6,178	993,666
Other	417,924	240,584	201,341	19,989	28,177	8,379	..	916,394
Total	1,008,972	353,863	470,498	144,206	170,386	72,715	6,830	2,227,470
Expenditure—								
Salaries	348,726	270,261	144,792	47,589	67,422	27,844	2,026	1,753,009
Maintenance	406,562		230,651	75,416	99,297	30,198	2,225	
Buildings	159,230	19,786	27,002	13,547	2,948	3,367	177	226,057
Other	79,082	1,602	13,605	8,036	4,161	11,647	2,402	120,535
Total	993,600	291,649	416,050	144,588	173,828	73,056	6,830	2,099,601

(a) Year ended 30th June, 1919.

2. *Principal Hospitals in each State.*—The tables here given refer to general hospitals. In addition there are hospitals for “specials” (such as women’s, children’s, and infectious diseases hospitals), and institutions nearly allied to hospitals (such as consumptive sanatoria). Where the institutions carry on general hospital relief, they are included with those establishments.

(i) *New South Wales.* A Government hospital, with a staff of 23 medical officers and accommodation for about 700 patients, is established at Little Bay, near Sydney. Altogether, there are four hospitals for women, one for women and children, and three for children in the metropolis. The Royal Prince Alfred Hospital, with a medical staff of 87, and with 584 beds, is the largest metropolitan endowed institution. Amongst other large metropolitan hospitals may be mentioned the Sydney Hospital, with a medical staff of 65 and with 398 beds, St. Vincent’s with 56 doctors and 190 beds, and Lewisham with 29 medical attendants and 169 beds. In extra-metropolitan areas the Waterfall Hospital for Consumptives, which is a Government institution, provides accommodation for 408 patients. The Newcastle Hospital has 180 beds and a medical staff of 20. At the Carrington Convalescent Home at Camden, 110 patients may be admitted. The hospital in the Broken Hill district can accommodate 162.

(ii) *Victoria.* There are several large metropolitan hospitals in Victoria. The largest of these, the Melbourne Hospital, has 350 beds; the Austin Hospital for Incurables has 290, the Alfred Hospital 168, St. Vincent’s 126, and the Homœopathic 98. Amongst the country institutions, Bendigo has 222 beds, Geelong 217, and Ballarat 170.

(iii) *Queensland.* Of the metropolitan hospitals, the largest is the Brisbane General, which can accommodate 361 patients. The Children’s Hospital has 250 beds, the Diamantina 174, and the Mater Misericordiæ 127. Ipswich Hospital, with 150 beds, is the largest of the country institutions, followed by Toowoomba with 130, Rockhampton with 110, Townsville with 105, Maryborough 96, Charters Towers 92, Bundaberg 92, Cairns 84, Mackay 84, and Mt. Morgan 71.

(iv) *South Australia.* Including the Consumptive Home and Infectious Diseases Block, the Adelaide Hospital can accommodate a total of 580 patients. The most important of the country hospitals are at Port Augusta, Port Pirie, and Wallaroo, with 72, 56, and 48 beds respectively. The Adelaide Children’s Hospital has 96 beds.

(v) *Western Australia.* Information regarding the capacity of the Western Australian hospitals is not available, but some idea of their comparative importance may be gained from the figures relating to cases treated. In the metropolis, 4,539 cases were treated at the Perth Hospital in 1920, and 1,759 at the Perth Children’s Hospital. Of the country hospitals, Kalgoorlie returned 1,500 cases, Fremantle 1,229, and Wooroloo 540.

(vi) *Tasmania.* There are well-equipped general hospitals in Hobart and Launceston. The former has a medical staff of 4 and can accommodate 225 patients, and the latter has 190 beds and a medical staff of 3. Hospitals for women have been established in both centres, and there is a sanatorium for consumptives at Newtown. Outside the metropolitan area, the Devon Cottage Hospital has a medical staff of 2, and beds for 82 patients; the Lyell District Hospital can accommodate 44 patients, and there are other institutions in important country centres.

(vii) *Northern Territory.* In addition to the hospitals at Darwin and Pine Creek, arrangements have been made for the supply of medicines and first aid to outlying stations.

3. **Benevolent and Destitute Asylums.**—A marked increase has taken place in the amount of aid bestowed upon the aged. Two elements, each of them independent of the growth of population, have influenced this increase. One is, that the general age of the community has advanced—the large flow of immigration of sixty and seventy years ago having been mostly of persons in the prime of life; the other is the increased regard paid in all British communities to the well-being of the helpless. The result in Australia has been that numerous establishments have been founded for the housing and protection of persons no longer able to care for themselves. The institutions are supported by Government and municipal aid, public subscriptions, charity performances, bequests, etc., and in many cases relatives of indigent and afflicted persons contribute to their maintenance.

The impossibility of an entirely satisfactory statistical tabulation in regard to all forms of charitable aid is especially marked in the case of benevolent institutions, since the conditions under which they have been established in the different centres in the Commonwealth have caused divergence in their development and in the classes of cases treated by them. For example, in Western Australia the Home for Destitute Women includes a maternity ward, for which the statistics are not separately kept. Since the predominating function of the institution is aid to the destitute, it has been included amongst benevolent asylums. In Victoria, nine of the hospitals are also benevolent asylums, and they are included wholly under the former. In South Australia, the Destitute Asylum includes lying-in and children's departments.

BENEVOLENT INSTITUTIONS.—REVENUE AND EXPENDITURE, 1920.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
	£	£	£	£	£	£	£
Revenue—							
Government aid	167,970	22,495	51,935	36,229	22,734	14,189	315,552
Municipal aid .. ..	..	816	..	..	..	..	816
Public subs., legacies, etc. ..	4,068	10,565	1,442	11	..	..	16,086
Fees	18,602	17,354	..	8,122	10,367	2,928	57,373
Other	6,876	7,450	1,257	315	..	1,036	16,934
Total	197,516	58,680	54,634	44,677	33,101	18,153	406,761
Expenditure—							
Buildings	1,724	1,041	3,078	668	..	513	7,024
Maintenance	185,781	57,054	50,793	44,078	33,101	15,980	386,787
Other	9,383	180	377	68	..	1,659	11,667
Total	196,888	58,275	54,248	44,814	33,101	18,152	405,478

(i) *Government Asylums for the Infirm, New South Wales.* There are five asylums for the infirm maintained by the Government—four for men and one for women. Rookwood, the largest of these, had in 1920 an average number resident of 1,274, Newington 706, and Liverpool 599. At the Cottage Homes, situated at two separate localities in Parramatta, the average number resident was about 451. The State Labour Depot and Refuge at Randwick had 648 inmates during 1920.

(ii) *Benevolent Asylums, Victoria.* Besides the asylums attached to hospitals, there are eight institutions in Victoria. In 1919–20, the average daily number of indoor patients was 1,916, and there were 456 distinct cases of outdoor relief.

(iii) *Benevolent Asylums, Queensland.* There are four institutions in Queensland, with 1,245 beds. The most important of these is at Dunwich (Stradbroke Island) with 1,127 beds, while there are small institutions at Nundah, Rockhampton, and Toowoomba. At the end of 1920 the inmates of the four institutions numbered 1,177.

(iv) *Destitute Asylum, Adelaide.* Outside of hospitals and lunatic asylums the destitute of South Australia are dealt with and relieved at the Destitute Asylum, Adelaide, and at the Aged Men's Home, Beaumont. The former institution includes lying-in and children's departments. In the asylum the number of inmates at the end of 1920 was 362; in the Beaumont Home it was 67.

(v) *Homes for the Destitute, Western Australia.* There are two of these homes in Western Australia supported by public funds. The Old Men's Home at Claremont had 568 inmates at the end of 1920, and the Women's Home, Fremantle, which receives children also, had 74 adult inmates.

(vi) *Charitable Establishments, Tasmania.* There are two principal Government charitable establishments in Tasmania. The New Town Infirmary and Consumptive Home, with 220 beds, had 195 inmates at the end of June, 1921, and the Home for Invalids, Launceston, with 23 beds, had 22 inmates on the same date.

4. Orphanages, Industrial Schools, etc.—The organization of charitable effort varies greatly in regard to orphans and waifs. In many institutions shelter and some form of industrial training are offered to destitute children of all classes, whether orphans or not, while some of those styled orphanages do not confine their relief to orphans strictly so called. The expenditure on orphanages in 1920 was £159,607.

(i) *New South Wales.* The care of destitute and neglected children is entrusted to the State Children's Relief Board, whose officers are charged with a strict supervision regarding the welfare of the children and the treatment of them by those to whom they are boarded out. Provision is made for instruction in various trades and callings.

There are also orphanages, farm homes, country homes for children, etc., with upwards of 1,900 children under care.

There are several reformatories and industrial schools maintained by the State. At the Parramatta Industrial School for Girls, to which a Training Home was attached in 1912, there were on 31st December, 1920, 124 inmates. At the Farm Home for boys, Gosford, 165 boys were admitted during 1920, and 141 discharged, including 115 who were released on probation.

(ii) *Victoria.* There are ten orphanages in Victoria, with 1,772 beds. The daily average of the inmates was 1,776 in 1919-20. The expenditure in the same year was £45,212.

At the end of 1920 there were three industrial and five reformatory schools in the State. Of these, one in each class is wholly controlled by the Government, being used merely as a receiving and distributing depot. The children are sent thence to situations, foster homes, or other institutions dealing with State wards. The other schools are under private management, receiving an allowance for State wards. Many of the reformatory children are placed with friends, or licensed out.

(iii) *Queensland.* There are twelve orphanages in Queensland. The number under care on 31st December, 1920, was 1,113, and the expenditure for the year, £29,341.

There are also six industrial and reformatory schools, which had 131 boys and 43 girls under detention at the end of 1920.

(iv) *South Australia.* The State Children's Department exercises a supervision over the probationary and industrial schools and the reformatories. The total number of admissions into these institutions in 1920-21 was 313. The number of inmates on the 30th June, 1921, was 265, in addition to which 1,587 were placed out, or had been adopted or apprenticed. There were no deaths amongst children in industrial schools and reformatories, and of those placed out and in other institutions nine died.

There are three orphan asylums. The number under care during 1920 was 445, and the number of inmates on 31st December, 1920, was 273. There were no deaths during the year, and the expenditure amounted to £4,050.

(v) *Western Australia.* In Western Australia there were, at the end of 1920, five orphanages, five orphanages and industrial schools, and two industrial schools, containing 485 boys and 418 girls. There were also 6 boys and 13 girls at the Government Receiving Depot at the 30th June, 1921.

(vi) *Tasmania.* There are three industrial schools and one orphanage under benevolent institutions in the State. Admissions in 1920-21 numbered 43, and average daily number of inmates was 149. One death occurred during the year. The expenditure was £4,607.

The New Town Training School for boys had 53 inmates at the end of June, 1920.

(vii) *Neglected Children.* The following table summarises the number of neglected children under State Departments:—

STATE RELIEF OF NEGLECTED CHILDREN.—TRANSACTIONS OF STATE DEPARTMENTS, 1920.

Particulars.	N.S.W. (a)	Vic.	Q'land.	S. Aust.	W. Aust.	Tas. (b)	C'wealth.
Number of Children under State control at end of year—							
Males	3,118	3,387	1,610	821	562	273	9,771
Females	2,285	2,339	1,213	712	555	224	7,828
Total	5,403	6,226	2,823	1,533	1,117	497	17,599
Number of Children boarded out with their own mothers—							
Males	12,839	{ 3,431	2,642	180	145	1	} 25,586
Females		{ 3,497	2,555	139	155	2	
Total	12,839	6,928	5,197	319	300	3	25,586
Total	18,242	(c)13,179	8,020	(d)3,753	1,417	500	45,111
	£	£	£	£	£	£	£
Gross cost to State of children's relief	390,652	250,125	194,826	47,482	29,712	12,035	924,832
Receipts, from parents' contributions, etc.	7,713	11,677	10,714	6,212	4,265	1,533	42,114
Net cost	382,939	238,448	184,112	41,270	25,447	10,502	882,718

(a) For year ended 5th April following. (b) For the year ended 30th June, 1921. (c) Including 25 (2 males and 23 females) incapacitated children maintained by the State. (d) Including 1901 children (929 males and 972 females) placed with licensed foster-mothers and others.

5. **Lepers.**—Lazarets for the treatment of lepers have been established in New South Wales (Little Bay); Queensland (Peel Island, near Brisbane, and Dayman Island, Torres Strait); and the Northern Territory (Mud Island). Quarantine and isolation stations have also been used for the segregation of patients. Up to 1915, 545 cases of leprosy had been recorded in the Commonwealth, while at the 31st December, 1920, there were 24 lepers in the Little Bay lazaret.

6. **Hospitals for the Insane.**—The method of compiling insanity statistics has been fairly uniform throughout the States, but the various methods of observing the early stages of the development of insanity introduce an element of uncertainty which considerably reduces the value of comparison. In the total given below, licensed houses (except as regards expenditure) are included in the total for New South Wales and Victoria, and in the latter State the figures are exclusive of reception houses and observation wards in gaols :—

HOSPITALS FOR INSANE, COMMONWEALTH, 1916 TO 1920.

Particulars.	1916.	1917.	1918.	1919.	1920.
Number of institutions ^(a)	35	34	34	35	35
Number of beds	16,673	16,808	17,176	17,308	17,468
Admissions	3,268	3,054	3,192	3,323	3,501
Discharged as recovered, relieved, etc.	1,451	1,456	1,406	1,565	2,302
Deaths	1,459	1,306	1,383	1,699	1,483
Expenditure £	861,258	875,963	951,439	1,116,676	1,414,055

(a) Exclusive of receiving wards at general hospitals and including licensed houses for insane in Victoria.

The proportion of insane, as well as the total number returned as under treatment, has changed very little during recent years. In the next table the number of insane under official care in Australia is given, and in the table following, the proportion of insane to population.

The number of insane persons in institutions in Australia at the end of each of the years 1916 to 1920 was as follows :—

INSANE PERSONS IN THE COMMONWEALTH, 1916 TO 1920.

State.	1916.	1917.	1918.	1919.	1920.
New South Wales ..	7,240	7,340	7,581	7,544	7,889
Victoria	5,793	5,833	5,915	5,846	5,830
Queensland	2,517	2,590	2,623	2,703	2,745
South Australia ..	1,158	1,176	1,153	1,187	1,194
Western Australia ..	1,045	1,066	1,123	1,148	1,166
Tasmania	545	570	575	578	578
Commonwealth ..	18,298	18,575	18,970	19,006	19,402

For the period embraced in the tables Victoria shows the highest rate of insanity, roughly 1 in 250 persons. It is stated that this is chiefly owing to the proportionately greater number of old persons in that State. On the other hand, in South Australia a considerably lower insanity rate has prevailed, averaging about 1 in 400, Tasmania following closely with an average of about 1 in 350.

PROPORTION OF INSANE PER 1,000 OF THE POPULATION AT 31st DECEMBER, 1916 TO 1920.

(COMMONWEALTH.)

State.	1916.	1917.	1918.	1919.	1920.
New South Wales ..	3.84	3.82	3.86	3.70	3.77
Victoria.. ..	4.12	4.12	4.12	3.89	3.82
Queensland ..	3.71	3.77	3.72	3.66	3.65
South Australia ..	2.62	2.63	2.52	2.46	2.43
Western Australia ..	3.41	3.41	3.62	3.51	3.52
Tasmania ..	2.79	2.88	2.83	2.75	2.72
Commonwealth ..	3.72	3.73	3.73	3.58	3.58

Consequent upon the development of a more rational attitude towards the treatment of mental cases, a greater willingness is being shewn to submit afflicted persons to treatment at an earlier stage than formerly. Hence an increase in the number of recorded cases does not necessarily imply an actual increase in insanity. It is important to bear this in mind, because the small progressive increase in the numbers in the first of the immediately preceding tables is probably to be attributed largely, if not solely, to this circumstance.

The leading features in regard to institutions for the care of the insane are given below for 1920 :—

HOSPITALS FOR THE INSANE.—NUMBER, STAFFS, ACCOMMODATION, 1920.

(COMMONWEALTH.)

Particulars.	N.S.W.	Vic.(a)	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Number of Institutions—							
Government	9	9	3	1	3	1	26
Private	3	(b)5	..	..	1	..	9
Total	12	14	3	1	4	1	35
Medical Staff—							
Males	22	21	6	3	3	2	57
Females	1	..	1	..	..	..	2
Total	23	21	7	3	3	2	59
Nursing Staff and Attendants—							
Males	664	563	252	91	128	89	1,787
Females	549	529	230	62	63	62	1,495
Total	1,213	1,092	482	153	191	151	3,282
Accommodation—							
Number of dormitories ..	(c)353	1,436	554	(f)	44	407	(f)
Capacity in cubic feet ..	3,582,976	3,662,328	1,921,271	(f)	714,714	878,590	(f)
Number of beds ..	6,303	5,269	2,774	1,237	1,186	699	17,468
Cubic feet to each bed ..	{ (d) 600 } { (e)1,000 }	{ 695 }	693	(f) {	(c)605 } (g)1,684 }	{ 1,256 }	(f)

(a) Exclusive of Receiving House, Royal Park, and of the Receiving Wards at Bendigo and Geelong Hospitals. (b) There are five private licensed houses in Victoria, in which there were 95 cases at end of 1920. Complete figures for these private asylums are not available. (c) Government hospitals only. (d) Ordinary dormitory. (e) Hospital dormitory. (f) Information not available. (g) Private hospitals.

HOSPITALS FOR THE INSANE.—PATIENTS TREATED, 1920.

Particulars.	N.S.W.	Vic.(a)	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Admissions and re-admissions during year—							
Males	826	465	318	160	132	40	1,941
Females	728	399	180	130	79	44	1,560
Total	1,554	864	498	290	211	84	3,501
Discharges—Recovered—							
Males	301	77	145	72	40	17	652
Females	284	150	95	40	28	14	611
Total	585	227	240	112	68	31	1,263
Relieved and unrelieved—							
Males	374	75	18	38	15	11	531
Females	353	97	8	32	9	9	508
Total	727	172	26	70	24	20	1,039
Absconders not retaken—							
Males	8	6	..	1	3	..	18
Females	2	1	..	1	..	..	4
Total	10	7	..	2	3	..	22
Deaths—							
Males	354	274	125	52	65	16	886
Females	235	200	65	47	33	17	597
Total	589	474	190	99	98	33	1,483
Number of patients on books at end of year—							
Males	4,483	2,888	1,758	659	804	286	10,878
Females	3,406	2,942	987	535	362	292	8,524
Total	7,889	5,830	2,745	1,194	1,166	578	19,402
Average daily number resident—							
Males	4,248	2,621	1,732	658	795	286	10,340
Females	3,049	2,589	962	529	353	288	7,770
Total	7,297	5,210	2,694	1,187	1,148	574	18,110
Number of patients on books at end of year per 1,000 of population—							
Males	4.20	3.83	4.43	2.69	4.55	2.67	3.95
Females	3.38	3.80	2.73	2.18	2.35	2.77	3.20
Persons	3.77	3.82	3.65	2.43	3.52	2.72	3.58
Average number of patients resident in hospitals for insane per 1,000 of mean population—							
Males	4.03	3.51	4.40	2.71	4.53	2.68	3.79
Females	3.02	3.37	2.74	2.17	2.30	2.75	2.95
Persons	3.53	3.44	3.62	2.44	3.49	2.72	3.38

(a) Exclusive of inmates of the Receiving House, Royal Park, and of Receiving Wards attached to the hospitals at Bendigo and Geelong, and of five private licensed houses.

In some of the States it is the practice to allow persons well advanced towards recovery to leave the institutions and reside with their relatives or friends, but they are nevertheless under supervision of the asylum authorities and are kept on the books. The figures for admission, etc., include absconders captured and readmitted. Very few escapees succeed in avoiding capture.

The revenue of Government asylums is small in comparison with their cost, and consists chiefly of patients' fees. The proportion of expenditure borne by the State amounts to about 88 per cent.

HOSPITALS FOR THE INSANE (GOVERNMENT ONLY), REVENUE AND EXPENDITURE, 1920.

Particulars.	N.S.W. (a)	Victoria. (a)	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
Government Grants ..	499,584	376,928	208,632	(b)	(b)	47,726	d1,132,870
Fees of Patients ..	61,917	33,246	12,505	15,904	8,102	6,823	138,497
Other ..	2,123	5,228	1,165	812	2,709	823	12,860
Total ..	563,624	415,402	222,302	c16,716	c10,811	55,372	d1,284,227
Expenditure—							
Salaries ..	279,435	181,266	101,376	25,797	40,273	24,058	652,205
Maintenance ..	253,769	204,855	96,050	43,569	39,873	30,189	668,305
Buildings ..	..	24,186	31,123	..	..	1,085	56,394
Other ..	30,420	5,095	984	612	..	40	37,151
Total ..	563,624	415,402	229,533	69,978	80,146	55,372	1,414,055

(a) Year ended 30th June, 1921.

(b) Not available.

(c) Exclusive of Government grants.

(d) Exclusive of Government grants in South Australia and Western Australia.

(i) *New South Wales.* No particulars are available regarding the average length of residence in hospitals during the year of persons who died or were discharged.

There are also three State reception houses, where suspected persons are confined for observation, being subsequently either discharged or transferred to lunatic asylums. In one of the gaols observation wards have been instituted, with similar functions.

(ii) *Victoria.* No particulars are available as to the average length of residence in hospitals during the year of persons who died or were discharged.

There are lunacy wards in two of the general hospitals; also a State receiving house where persons are placed for observation, and subsequently discharged or transferred to asylums.

(iii) *Queensland.* The average residence in the institutions of those who died during the year was 8 years 1 month for males and 10 years for females; and of those who were discharged, 9 months for males and 1 year for females.

There are also three reception houses for insane, which act as depots to which patients are sent with a view to determining whether their mental illness is of a merely temporary character, easily relieved, or is of such a nature as to need further treatment at the State asylums.

(iv) *South Australia.* The average residence of those who died was 5 years and 7 months for males and 8 years 5 months for females; of those discharged, 1 year and 11 months for males and 1 year and 6 months for females.

(v) *Western Australia.* The period of residence of those who died during the year averaged 3 years 3 months for males and 3 years 7 months for females; of those who were discharged, 22 months for males and 2 years and 2 months for females.

(vi) *Tasmania.* The period of residence of those who died was 6 years 2 months for males and 9 years 7 months for females; that of those discharged, 1 year for males and 4 years and 5 months for females.

(vii) *Causes of Insanity.* The proportion of causes of insanity to the total of ascertained causes in Australia in the five years 1916–20 shews that hereditary influences have been the chief factor, more than one-fifth of the total ascertained causes coming under this head. Domestic troubles, adverse circumstances, etc., have also been a fruitful source. Cases due to intemperance in drink range from one in nine to one in twelve.

**PROPORTION OF ASCERTAINED CAUSES, ETC., OF INSANITY, COMMONWEALTH,
1916 TO 1920.**

Causes, Previous History, etc.	1916.	1917.	1918.	1919.	1920.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Domestic trouble, adverse circumstances, mental anxiety ..	9.6	9.7	9.9	8.4	9.3
Intemperance in drink ..	10.3	10.5	10.2	8.7	10.9
Hereditary influence, ascertained; congenital defect, ascertained ..	22.4	21.8	22.1	21.1	23.7
Pregnancy, lactation, parturition and puerperal state, uterine and ovarian disorders, puberty, change of life ..	5.1	6.0	4.9	5.8	6.0
Previous attacks ..	14.9	14.1	14.6	12.4	12.5
Accident, including sunstroke ..	1.8	1.9	1.5	1.8	1.7
Old age ..	10.0	9.8	9.4	8.1	10.6
Other causes ascertained ..	25.9	26.2	27.4	33.7	25.3
All ascertained causes ..	100.0	100.0	100.0	100.0	100.0

7. **Treatment of Inebriates.**—The treatment of inebriates is referred to in the section dealing with Public Justice hereinbefore. (See page 773.)

8. **Protection of Aborigines.**—For the protection of the aboriginal Australian race there are institutions, under the supervision of Aborigines Boards, where the blacks are housed and encouraged to work, the children receiving elementary education. The work is usually carried on at mission stations, but many of the natives are nomadic in habit of life, and receive food and clothing when they call, whilst others but rarely come under the notice of the Boards. The native race is extinct in Tasmania. The approximate annual expenditure on maintenance, etc., is—New South Wales, £35,000; Victoria, £4,000; Queensland, £21,000; South Australia, £27,000; Western Australia, £35,000; Northern Territory, £3,000; total for Commonwealth, £125,000. In 1920 in New South Wales the average number receiving monthly aid was 2,582; in Victoria there were 293 under the care of the Aborigines Protection Board; in Queensland, at the end of 1920, there were 2,974 aborigines at the mission stations; in South Australia, there were 823 inmates at mission stations, while in Western Australia the aborigines and half-castes in the native institutions numbered 548. At the mission stations in the Northern Territory about 300 were in residence, but casual assistance and medical attendance are given to large numbers of natives every year.

9. **Royal Life Saving Society.**—In each of the State capitals, “centres” of the Royal Life Saving Society have been established. Life preservation is the object of the Society, and its immediate aims are (a) educative and (b) remedial. By stimulating the acquirement of the art of swimming in schools, colleges, clubs, etc., it is desired to bring about a widespread and thorough knowledge of natation and life-saving; while life-belts, reels, lines, and other first-aid appliances are provided on ocean beaches and at places where they are likely to be in demand. Upwards of 3,000 certificates of proficiency in various grades are annually issued after examination.

10. **Royal Humane Society.**—The Royal Humane Society of Australasia has for its objects (a) to grant awards for skill, promptness, and perseverance in life saving; (b) to provide assistance in cases of danger and apparent death; (c) to restore the apparently drowned; (d) to collect and circulate the latest information regarding approved methods and apparatus for life saving. Awards of medals and certificates are made numbering about 100 annually. Upwards of 350 lifebuoys have been provided at various places on the coasts, rivers, lakes, and reservoirs in the various States. Swimming is encouraged amongst school children, and awards are made for proficiency.

11. Other Charitable Institutions.—Owing to variety of name and function of other charitable institutions it has been found impracticable to give detailed results. The aid given in kind—food, clothing, tools of trade, etc.—is considerable, whilst the shelter and treatment afforded range from a bed for a night for casual callers in establishments ministering minor charity, to indoor treatment over long periods in those that exist for the relief of the aged and infirm. The institutions not so particularised include asylums for the deaf, dumb, and blind, maternity institutions and infant homes, homes for the destitute and aged poor, industrial colonies, night shelters, crèches, homes of hope, rescue homes, free kindergarten and ragged schools, auxiliary medical charities, free dispensaries, benevolent societies and nursing systems, ambulance and health societies, boys' brigades, humane and animals' protection societies, prisoners' aid associations, shipwreck relief societies, bush fires and mining accident relief funds, etc.

12. State Expenditure on Charities.—The table below gives the amount expended by Government on charities in each of the last five years, the figures for the various States being compiled, as far as possible, on the same basis :—

STATE EXPENDITURE ON CHARITIES, 1916 TO 1920.

State or Territory.	1916.	1917.	1918.	1919.	1920.
	£	£	£	£	£
New South Wales ..	876,767	863,713	962,901	1,148,360	2,391,057
Victoria ..	525,682	543,225	541,817	578,055	1,230,566
Queensland ..	324,143	372,342	417,743	516,944	933,547
South Australia ..	162,849	191,748	166,250	195,687	416,303
Western Australia ..	247,589	178,477	249,361	289,404	451,738
Tasmania ..	79,494	88,445	95,867	121,371	199,206
Northern Territory ..	5,649	4,488	4,156	6,178	(a) 6,178
Commonwealth ..	2,222,173	2,242,438	2,438,095	2,855,999	5,628,595

(a) Expenditure for 1920 not available.

13. Total Charitable Expenditure.—The expenditure in the Commonwealth in money on hospitals, charities, and all forms of relief publicly given, comprising the amounts furnished by Government and those raised by public subscription, etc., but excluding old-age pensions, exceeds £4,600,000 annually.

SECTION XXV.

GENERAL GOVERNMENT.

§ 1. Scheme of Parliamentary Government.

1. **General.**—The legislative power of the Commonwealth is vested in the Federal Parliament, which consists of the Sovereign, the Senate, and the House of Representatives. The Sovereign is represented throughout the Commonwealth by the Governor-General who, subject to the Constitution of the Commonwealth, has such powers and functions as the Sovereign is pleased to assign to him. In each State there is a State Governor, who is the representative of the Sovereign for the State, and who exercises such powers within the State as are conferred upon him by the Letters Patent which constitute his office, and by the instructions, which inform him in detail of the manner in which his duties are to be fulfilled. The Legislature in each State was bi-cameral till 1922, in which year the Queensland Parliament became uni-cameral. In the bi-cameral States it consists of (a) a Legislative Council and (b) a Legislative Assembly, or House of Assembly. In Queensland the Legislative Assembly constitutes the Parliament. The legislative powers of these Parliaments are delimited by the Commonwealth and the State Constitutions. The Assembly, which is the larger, is always elective, the qualifications for the franchise varying in character. The Council is, in the case of New South Wales, nominated by the Governor-in-Council; in other States it is elective, the constituencies being differently arranged and some property or special qualification for the electorate being required. In the Federal Parliament, however, the qualifications for the franchise are identical for both Houses. A brief account of the constitutional history of each of the States was given in previous issues of this book (see especially Year Book No. 4, pp. 27 to 32), and a conspectus of the Constitution of the Commonwealth and States in Year Book No. 13, pp. 927 to 951.

2. **Number of Members of the Legislatures.**—The following table shews the number of members in each of the legislative chambers in the Commonwealth and in each State at 1st August, 1922 :—

MEMBERS OF PARLIAMENT OF AUSTRALIA, 1922.

Members in—		C'wealth.	N.S.W.	Victoria.	Q'land. (a)	S. Aust.	W. Aust.	Tas.	Total.
Upper House	..	36	83	34	..	20	30	18	221
Lower House	..	75	90	65	72	46	50	30	428
Total	..	111	173	99	72	66	80	48	649

(a) Council abolished, 1922.

The use of the expressions "Upper House" and "Lower House" in the above statement, though not justified constitutionally, is convenient, inasmuch as the legislative chambers are known by different names in the Commonwealth and in some of the States.

In the Commonwealth Parliament the Upper House is known as the Senate, and in the State Parliaments as the Legislative Council. The Lower House is known as follows:—In the Commonwealth Parliament as the House of Representatives, in the State Parliaments of New South Wales, Victoria, Queensland, and Western Australia as the Legislative Assembly, and in the State Parliaments of South Australia and Tasmania as the House of Assembly.

3. The Cabinet and Executive Government.—The Sections of the Commonwealth Constitution Act dealing with the Executive Government will be found on page 18 hereinbefore. In both the Commonwealth and the State Legislatures the forms of government have been founded on their prototypes in the Imperial Government, and the relations established between the Ministry and the representatives of the people are in accordance with those prevailing in Great Britain. The executive powers in the Commonwealth and in the State Governments are vested in the Governor-in-Council. The Executive Council in the Commonwealth and in the majority of the States is practically co-extensive with a group of departmental chiefs, who are usually spoken of as the Cabinet, and who change with the rise and fall of party majorities. In the Commonwealth Government, however, as well as in the States of Victoria and Tasmania, the Cabinet on leaving office remain members of the Executive Council, though they no longer attend its meetings, and it is in fact an essential feature of the Cabinet system of Government that they should not do so, except to assist the Governor in transacting purely formal business, or to advise on non-political questions.

(i) *The Executive Council.* This body is composed of the Governor and the Ministers of State holding office for the time being. The latter are sworn both as Executive Councillors and as Ministers controlling the different administrative departments. It should be observed that all persons living who have held Ministerial office under former Governments are also technically members of the Executive Council, and are thus liable to be specially summoned for attendance at meetings of that body. The meetings are official in character; they are presided over by the Governor-General (or Governor) and are attended by the clerk, who keeps a formal record of the proceedings. At these meetings the decisions of the Cabinet are put into official form and made effective, appointments are confirmed, resignations accepted, proceedings ordered, and notices and regulations published.

The official members of the Executive Council in August, 1922, have been previously specified (see page 30). In addition, all living members of past Ministries (see following pages) are technically liable to be officially summoned to attend meetings of the Executive Council.

Particulars of previous Commonwealth Ministries are given on pages 27 to 30 hereinbefore.

(ii) *The Cabinet.* The meetings of this body are private and deliberative. No one is admitted but the actual Ministry of the day, no records of the meetings transpire, and no official notice is taken of the proceedings. The members of the Cabinet, being the leaders of the party in power in Parliament, control the bent of legislation, and must retain the confidence of the people and also of the Governor-General (or Governor), to whom they act as an advising body. They also in effect wield, by virtue of their seats on the Executive Council, the whole executive force of the community. In summoning, proroguing, or dissolving Parliament, the Governor-General (or Governor) is usually guided by the advice tendered him by the Cabinet, though legally in no way bound to accept such advice. The following statement gives the names of the Ministers of State for the Commonwealth who have held office since the inauguration of the Commonwealth Government. In 1921, the Navy Department was again amalgamated with the Defence and the portfolio of External Affairs was revived:—

MINISTERS OF STATE FOR THE COMMONWEALTH OF AUSTRALIA FROM 1st JANUARY, 1901, to AUGUST, 1922.

HOME AND TERRITORIES.
(Prior to 14/11/16 known as External Affairs).

Name.	From—	To—
Rt. Hon. E. BARTON, P.C., K.C. (a) (b) ..	1/1/01	23/9/03
Hon. A. DEAKIN (a) ..	23/9/03	26/4/04
Hon. W. M. HUGHES (k) ..	26/4/04	17/8/04
Rt. Hon. G. H. REID, P.C., K.C. (a) (g) ..	17/8/04	4/7/05
Hon. A. DEAKIN (a) ..	4/7/05	12/11/08
Hon. E. L. BATCHELOR ..	12/11/08	2/6/09
Hon. L. E. GROOM ..	2/6/09	29/4/10
Hon. E. L. BATCHELOR ..	29/4/10	f 8/10/11
Hon. J. THOMAS ..	14/10/11	24/6/13
Hon. P. McM. GLYNN, K.C. ..	24/6/13	17/9/14
Hon. J. A. ARTHUR ..	17/9/14	f 9/12/14
Hon. HUGH MAHON ..	14/12/14	14/11/16
Hon. F. W. BAMFORD ..	14/11/16	17/2/17
Hon. P. McM. GLYNN, K.C. ..	17/2/17	3/2/20
Hon. A. POYNTON ..	4/2/20	21/12/21
Rt. Hon. G. F. PEARCE, P.C. ..	21/12/21	(e)

TRADE AND CUSTOMS.

Name.	From—	To—
Rt. Hon. C. C. KINGSTON, P.C., K.C. ..	1/1/01	24/7/03
Hon. Sir W. J. LYNE, K.C.M.G. ..	7/8/03	26/4/04
Hon. A. FISHER (h) ..	26/4/04	17/8/04
Hon. A. MCLEAN ..	17/8/04	4/7/05
Hon. Sir W. J. LYNE, K.C.M.G. ..	4/7/05	29/7/07
Hon. A. CHAPMAN ..	29/7/07	12/11/08
Hon. F. G. TUDOR ..	12/11/08	2/6/09
Hon. Sir R. W. BEST, K.C.M.G. ..	2/6/09	29/4/10
Hon. F. G. TUDOR ..	29/4/10	24/6/13
Hon. L. E. GROOM ..	24/6/13	17/9/14
Hon. F. G. TUDOR ..	17/9/14	14/9/16
Rt. Hon. W. M. HUGHES, P.C. ..	29/9/16	14/11/16
Hon. W. O. ARCHIBALD ..	14/11/16	17/2/17
Hon. J. A. JENSEN ..	17/2/17	13/12/18
Hon. W. A. WATT (n) ..	13/12/18	17/1/19
Hon. W. M. GREENE ..	17/1/19	21/12/21
Hon. A. S. RODGERS ..	21/12/21	(e)

ATTORNEY-GENERAL.

Name.	From—	To—
Hon. A. DEAKIN ..	1/1/01	23/9/03
Hon. J. G. DRAKE ..	23/9/03	26/4/04
Hon. H. B. HIGGINS, K.C. ..	26/4/04	17/8/04
Rt. Hon. Sir J. H. SYMON, K.C.M.G., K.C. ..	17/8/04	4/7/05
Hon. I. A. ISAACS ..	4/7/05	11/10/06
Hon. L. E. GROOM ..	11/10/06	12/11/08
Hon. W. M. HUGHES (k) ..	12/11/08	2/6/09
Hon. P. M. GLYNN ..	2/6/09	29/4/10
Hon. W. M. HUGHES (k) ..	29/4/10	24/6/13
Hon. W. H. IRVINE, K.C. (j) ..	24/6/13	17/9/14
Hon. W. M. HUGHES (a) (k) ..	17/9/14	21/12/21
Hon. L. E. GROOM ..	21/12/21	(e)

TREASURER.

Name.	From—	To—
Rt. Hon. Sir. G. TURNER, P.C., K.C.M.G. ..	1/1/01	26/4/04
Hon. J. C. WATSON (a) ..	26/4/04	17/8/04
Rt. Hon. Sir G. TURNER, P.C., K.C.M.G. ..	17/8/04	4/7/05
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l) ..	4/7/05	29/7/07
Hon. Sir W. J. LYNE, K.C.M.G. ..	29/7/07	12/11/08
Hon. A. FISHER (n) (h) ..	12/11/08	2/6/09
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l) ..	2/6/09	29/4/10
Rt. Hon. A. FISHER, P.C. (a) ..	29/4/10	24/6/13
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l) ..	24/6/13	17/9/14
Rt. Hon. A. FISHER, P.C. (a) ..	17/9/14	27/10/15
Hon. W. G. HIGGS ..	27/10/15	27/10/16
Hon. A. POYNTON ..	24/11/16	17/2/17
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l) ..	17/2/17	27/3/18
Hon. W. A. WATT (n) ..	27/3/18	15/6/20
Rt. Hon. Sir JOSEPH COOK, P.C., G.C.M.G. ..	28/7/20	21/12/21
Hon. S. M. BRUCE, M.C. ..	21/12/21	(e)

WORKS AND RAILWAYS.
(Prior to 14/11/16 known as Home Affairs).

Name.	From—	To—
Hon. Sir W. J. LYNE, K.C.M.G. ..	1/1/01	7/8/03
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l) ..	7/8/03	26/4/04
Hon. E. L. BATCHELOR ..	26/4/04	17/8/04
Hon. D. THOMSON ..	17/8/04	4/7/05
Hon. L. E. GROOM ..	4/7/05	11/10/06
Hon. T. T. EWING (c) ..	11/10/06	23/1/07
Hon. J. H. KEATING ..	23/1/07	12/11/08
Hon. H. MAHON ..	12/11/08	2/6/09
Hon. G. W. FULLER ..	2/6/09	29/4/10
Hon. K. O'MALLEY ..	29/4/10	24/6/13
Hon. JOSEPH COOK (a) (f) ..	24/6/13	17/9/14
Hon. W. O. ARCHIBALD ..	17/9/14	27/10/15
Hon. K. O'MALLEY ..	27/10/15	14/11/16
Hon. P. J. LYNCH ..	14/11/16	17/2/17
Hon. W. A. WATT (n) ..	17/2/17	27/3/18
Hon. L. E. GROOM ..	27/3/18	21/12/21
Hon. R. W. FOSTER ..	21/12/21	(e)

DEFENCE.

Name.	From—	To—
Hon. Sir J. R. DICKSON, K.C.M.G. ..	1/1/01	f 10/1/01
Rt. Hon. Sir J. FORREST, P.C., G.C.M.G. (l) ..	17/1/01	7/8/03
Hon. J. G. DRAKE ..	7/8/03	23/9/03
Hon. A. CHAPMAN ..	23/9/03	26/4/04
Hon. A. DAWSON ..	26/4/04	17/8/04
Hon. J. W. MCCAY (m) ..	17/8/04	4/7/05
Hon. T. PLAYFORD ..	4/7/05	23/1/07
Hon. Sir T. T. EWING, K.C.M.G. ..	23/1/07	12/11/08
Hon. G. F. PEARCE (o) ..	12/11/08	2/6/09
Hon. J. COOK (f) ..	2/6/09	29/4/10
Hon. G. F. PEARCE (o) ..	29/4/10	24/6/13
Hon. E. D. MILLER ..	24/6/13	17/9/14
Hon. G. F. PEARCE (o) ..	17/9/14	21/12/21
Hon. W. M. GREENE ..	21/12/21	(e)

(a) Prime Minister. (b) Afterwards the Rt. Hon. Sir E. Barton, P.C., G.C.M.G., etc. (c) Afterwards the Hon. Sir T. T. Ewing, K.C.M.G. (d) Afterwards the Hon. Sir N. E. Lewis, K.C.M.G. (e) Still in office. (f) Died while holding office. (g) Afterwards the Rt. Hon. Sir G. H. Reid, P.C., G.C.M.G. (h) Afterwards the Rt. Hon. A. Fisher, P.C. (i) Afterwards the Rt. Hon. Sir J. Cook, P.C., G.C.M.G. (j) Afterwards the Hon. Sir W. H. Irvine, K.C.M.G., K.C. (k) Afterwards the Rt. Hon. W. M. Hughes, P.C. (l) Afterwards Lord Forrest of Bunbury. (m) Afterwards the Hon. Sir J. W. McCay, K.C.M.G. (n) Afterwards the Rt. Hon. W. A. Watt, P.C. (o) Afterwards the Rt. Hon. G. F. Pearce, P.C.

MINISTERS OF STATE FOR THE COMMONWEALTH OF AUSTRALIA FROM 1st JANUARY, 1901, TO AUGUST, 1922—continued.

POSTMASTER-GENERAL.			VICE-PRESIDENT OF THE EXECUTIVE COUNCIL.		
Name.	From—	To—	Name.	From—	To—
Rt. Hon. Sir JOHN FORREST, P.C., G.C.M.G. (i) ..	1/1/01	17/1/01	Hon. R. E. O'CONNOR, K.C. ..	1/1/01	23/9/03
Hon. J. G. DRAKE ..	5/2/01	7/8/03	Hon. T. PLAYFORD ..	23/9/03	26/4/04
Hon. Sir P. O. FYSH, K.C.M.G. ..	7/8/03	26/4/04	Hon. G. MCGREGOR ..	26/4/04	17/8/04
Hon. H. MAHON ..	26/4/04	17/8/04	Hon. J. G. DRAKE ..	17/8/04	4/7/05
Hon. S. SMITH ..	17/8/04	4/7/05	Hon. T. T. EWING (e) ..	4/7/05	11/10/06
Hon. A. CHAPMAN ..	4/7/05	29/7/07	Hon. J. H. KEATING ..	11/10/06	19/2/07
Hon. S. MAUGER ..	29/7/07	12/11/08	Hon. Sir R. W. BEST, K.C.M.G. ..	19/2/07	12/11/08
Hon. J. THOMAS ..	12/11/08	2/6/09	Hon. G. MCGREGOR ..	12/11/08	2/6/09
Hon. Sir J. QUICK ..	2/6/09	29/4/10	Hon. E. D. MILLEN ..	2/6/09	29/4/10
Hon. J. THOMAS ..	29/4/10	14/10/11	Hon. G. MCGREGOR ..	29/4/10	24/6/13
Hon. C. E. FRAZER ..	14/10/11	24/6/13	Hon. J. H. MCCOLL ..	24/6/13	17/9/14
Hon. AGAR WYNNE ..	24/6/13	17/9/14	Hon. A. GARDINER ..	17/9/14	27/11/18
Hon. W. G. SPENCE ..	17/9/14	27/10/15	Hon. W. G. SPENCE ..	27/11/16	17/2/17
Hon. W. WEBSTER ..	27/10/15	3/2/20	Hon. E. D. MILLEN ..	17/2/17	16/11/17
Hon. G. H. WISE ..	4/2/20	21/12/21	Hon. L. E. GROOM ..	16/11/17	27/3/18
Hon. A. POYNTON, O.B.E.	21/12/21	(e)	Hon. E. J. RUSSELL ..	27/3/18	21/12/21
			Hon. JOHN EARLE ..	21/12/21	(e)
THE NAVY.			REPATRIATION.		
(Amalgamated with Defence before 1915, and after 21st December, 1921.)			Name.	From—	To—
Name.	From—	To—	Hon. E. D. MILLEN ..	28/9/17	(e)
Hon. J. A. JENSEN ..	12/7/15	17/2/17			
Rt. Hon. J. COOK, P.C. (i)	17/2/17	28/7/20			
Hon. W. H. LAIRD SMITH	28/7/20	21/12/21			
EXTERNAL AFFAIRS (revived December, 1921).			HEALTH.		
Name.	From—	To—	Name.	From—	To—
Rt. Hon. W. M. HUGHES, P.C., K.C. ..	21/12/21	(e)	Hon. W. M. GREENE ..	10/3/21	(e)
WITHOUT PORTFOLIO.					
Name.	From—	To—	Name.	From—	To—
Hon. N. E. LEWIS (d) ..	1/1/01	23/4/01	Hon. W. H. KELLY ..	24/6/13	17/9/14
Hon. Sir P. O. FYSH, K.C.M.G. ..	23/4/01	7/8/03	Hon. H. MAHON ..	17/9/14	14/12/14
Hon. J. H. KEATING ..	5/7/05	11/10/06	Hon. J. A. JENSEN ..	17/9/14	12/7/15
Hon. S. MAUGER ..	11/10/06	29/7/07	Hon. E. J. RUSSELL ..	17/9/14	27/3/18
Hon. J. H. COOK ..	28/1/08	12/11/08	Hon. W. H. LAIRD SMITH	14/11/16	17/2/17
Hon. J. HUTCHISON ..	12/11/08	2/6/09	Hon. L. E. GROOM ..	17/2/17	16/11/17
Hon. A. DEARIN (a) ..	2/6/09	29/4/10	Hon. A. POYNTON ..	26/3/18	4/2/20
Col. Hon. J. F. G. FOXTON, C.M.G. ..	2/6/09	29/4/10	Hon. G. H. WISE ..	26/3/18	4/2/20
Hon. E. FINDLEY ..	29/4/10	24/6/13	Hon. W. M. GREENE ..	26/3/18	17/1/19
Hon. C. E. FRAZER ..	29/4/10	14/10/11	Hon. R. B. ORCHARD ..	26/3/18	31/1/19
Hon. E. A. ROBERTS ..	23/10/11	24/6/13	Hon. Sir G. de L. RYRIE, K.C.M.G., C.B., V.D. ..	4/2/20	(e)
Hon. J. S. CLEMONS ..	24/6/13	17/9/14	Hon. W. H. LAIRD SMITH	4/2/20	28/7/20
			Hon. A. S. RODGERS ..	28/7/20	21/12/21
			Hon. H. LAMOND ..	21/12/21	(e)

See notes on previous page.

(iii) *Constitution of Ministries.* The subjoined table shews the constitution of the Ministries in the Commonwealth and the State Governments in August, 1922 :—

CONSTITUTION OF MINISTRIES, 1922.

Ministers with Seats in—	C'wealth.	N.S.W.	Vict.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
The Upper House ..	3	2	4	..	2	1	2	14
The Lower House ..	9	10	8	9	4	5	5	50
Total ..	12	12	12	9	6	6	7	64

The names of the members of the Ministries in each State in August, 1922, are shown in the following statement :—

MEMBERS OF STATE GOVERNMENT MINISTRIES, 1922.

NEW SOUTH WALES.—MINISTRY.

<i>Premier—</i>	<i>Secretary for Public Works and Minister for Railways and State Industrial Enterprises—</i>
HON. SIR G. W. FULLER, K.C.M.G.	HON. R. T. BALL.
<i>Vice-President of the Executive Council—</i>	<i>Minister for Agriculture—</i>
HON. SIR J. H. CARRUTHERS, K.C.M.G., LL.D., M.L.C.	CAPTAIN THE HON. F. A. CHAFFEY.
<i>Secretary for Lands and Minister for Forests—</i>	<i>Minister of Public Instruction—</i>
HON. W. E. WEARNE.	HON. A. BRUNTNELL.
<i>Colonial Secretary and Minister for Public Health—</i>	<i>Secretary for Mines and Minister for Local Government—</i>
HON. C. W. OAKES.	HON. J. C. L. FITZPATRICK.
<i>Attorney-General—</i>	<i>Minister of Justice—</i>
HON. T. R. BAVIN.	HON. T. J. LEY.
<i>Treasurer—</i>	<i>Minister for Labour and Industry—</i>
HON. A. A. C. COCKS.	HON. E. H. FARRAR, M.L.C.

VICTORIA.—MINISTRY.

<i>Premier and Minister of Agriculture and of Water Supply—</i>	<i>Minister of Railways and Mines—</i>
HON. H. S. W. LAWSON.	HON. S. BARNES.
<i>Treasurer—</i>	<i>Chief Secretary and Minister of Public Health—</i>
HON. W. M. McPHERSON.	MAJOR THE HON. M. BAIRD.
<i>Attorney-General and Solicitor-General—</i>	<i>Commissioner of Crown Lands and Survey—</i>
HON. A. ROBINSON, C.M.G., M.L.C.	HON. D. S. OMAN.
<i>Minister of Public Instruction and of Labour and of Forests—</i>	<i>Ministers without Portfolio—</i>
HON. SIR A. J. PEACOCK, K.C.M.G.	HON. J. K. MERRITT, M.L.C.
<i>Commissioner of Public Works—</i>	HON. G. M. DAVIES, M.L.C.
HON. F. G. CLARKE, M.L.C.	HON. H. ANGUS.
	HON. J. W. PENNINGTON

QUEENSLAND.—MINISTRY.

<i>Premier, Vice-President of the Executive Council, Chief Secretary, Treasurer, and Secretary for Public Works—</i>	<i>Attorney-General—</i>
HON. E. G. THEODORE.	HON. J. MULLAN.
<i>Secretary for Agriculture and Stock—</i>	<i>Secretary for Public Instruction—</i>
HON. W. N. GILLIES.	HON. J. HUXHAM.
<i>Secretary for Mines—</i>	<i>Home Secretary—</i>
HON. A. J. JONES.	HON. W. MCCORMACK.
<i>Secretary for Railways—</i>	<i>Secretary for Public Lands—</i>
HON. J. LARCOMBE.	HON. J. H. COYNE.
	<i>Minister without Portfolio—</i>
	HON. W. F. SMITH.

SOUTH AUSTRALIA.—MINISTRY.

Premier and Attorney-General—

HON. SIR H. N. BARWELL, K.C.M.G.

*Chief Secretary, Minister of Marine, and
Minister Controlling Wheat Scheme—*

HON. J. G. BICE, M.L.C.

Treasurer and Minister of Education—

HON. G. RITCHIE.

*Commissioner of Public Works and Minister
of Railways and of Industry—*

HON. W. HAGUE.

*Commissioner of Crown Lands and Immi-
gration and Minister of Repatriation—*

HON. G. R. LAFFER.

*Minister of Agriculture, Irrigation, and
Mines—*

HON. T. PASCOE, M.L.C.

WESTERN AUSTRALIA.—MINISTRY.

*Premier, Colonial Treasurer, and Minister
for Lands and Repatriation—*

HON. SIR JAMES MITCHELL, K.C.M.G.

*Minister for Mines, Railways, Police,
Industries, and Forests—*

HON. J. SCADDAN.

*Minister for Education, North-Western
Territory, and Justice—*

HON. H. P. COLEBATCH, M.L.C.

*Colonial Secretary and Minister for Public
Health—*

HON. R. S. SAMPSON.

*Minister for Public Works, Water Supply,
Sewerage and Drainage, and Trading
Concerns—*

HON. W. J. GEORGE, C.M.G.

Minister for Agriculture—

HON. H. K. MALEY.

TASMANIA.—MINISTRY.

*Premier and Minister for Works and
Agriculture—*

HON. J. B. HAYES, C.M.G.

*Chief Secretary and Minister for Educa-
tion—*

HON. J. C. MCPHEE.

*Attorney-General and Minister for Rail-
ways—*

HON. W. B. PROPSTING, C.M.G., M.L.C.

Minister for Lands—

HON. E. F. BLYTH.

Treasurer and Minister for Mines—

HON. SIR W. H. LEE, K.C.M.G.

Ministers without Portfolio—

HON. A. HEAN, C.M.G.

HON. T. SHIELDS, M.L.C.

4. The Appointment of Ministers and of Executive Councillors.—Although it is technically possible for the Governor to make and unmake cabinets at his pleasure, under all ordinary circumstances his apparent liberty in choosing his Executive Council is virtually restricted by the operation of constitutional machinery. When a Ministry is defeated in Parliament or at the polls, the procedure both in the Commonwealth and the State Parliaments generally, though not invariably, follows that prevailing in the Imperial Parliament. The customary procedure in connexion with the resignation or acceptance of office by a Ministry is described fully in previous issues of the Year Book. (See No. 6, page 942.)

5. Enactments of the Parliament.—In the Commonwealth, all laws are enacted in the name of the Sovereign, the Senate, and the House of Representatives. The subjects with respect to which the Commonwealth Parliament is empowered to make laws are enumerated in the Constitution Act (see pp. 15 and 16 hereinbefore). In the States, laws are enacted in the name of the Sovereign by and with the consent of the Legislative Council and Legislative Assembly or House of Assembly. The Governor-General or the State Governor acts as Viceroy as regards giving the Royal Assent to or vetoing Bills passed by the Legislatures, or reserving them for the special consideration of the Sovereign. In the States, the Councils and Assemblies are empowered generally, subject to the Commonwealth Constitution, to make laws in and for their respective States, in all cases whatsoever. Subject to certain limitations, they may alter, repeal, or vary their Constitution. Where a law of a State is inconsistent with a law of the Commonwealth the latter prevails, and the former is, to the extent of the inconsistency, invalid.

6. Powers and Functions of the Governor-General and of the Governors.—The Governor-General and the State Governors act under the authority of the Commissions by which they are appointed and the Letters Patent under the Great Seal of the United Kingdom, and according to instructions issued by the Colonial Office and passed under the Royal Sign Manual and Signet.

The office of Governor-General and Commander-in-Chief of the Commonwealth was constituted by Letters Patent issued on the 29th October, 1900, in pursuance of the provisions of the Commonwealth Constitution Act (see page 9 hereinbefore). The powers and duties of the Governor-General were further defined by Royal instructions issued on the same date. The principal and most important of his functions, legislative as well as executive, are expressly conferred upon him by the terms of the Constitution itself. He is the custodian of the Great Seal of the Commonwealth, and has the appointment of political officers to administer Departments of State of the Commonwealth.

His legislative functions are exercised with respect to proposed laws as finally passed by the Federal Houses of Parliament. Such Bills are presented to the Governor-General for his assent in the King's name, on receiving which they become law throughout the Commonwealth. The Governor-General may, however, withhold his assent, or may reserve any Bill for the King's pleasure. He may return to the House in which it originated any proposed law with suggested amendments. The King may disallow any law within one year from the date on which it was assented to by the Governor-General.

The Governor-General's executive functions are, under ordinary circumstances, exercised on the advice of his responsible Ministers. Various specific powers are vested in him by the Constitution; he may summon or prorogue Parliament and may dissolve the House of Representatives. He is the Commander-in-Chief of the military and naval forces of the Commonwealth, and is invested by the Crown with the prerogative of mercy in cases of offences committed against the laws of the Commonwealth.

The Governor-General is also invested with authority in certain matters of Imperial interest, such as the control of the naval and military forces of the Commonwealth; the observance of the relations of foreign States to Great Britain, so far as they may be affected by the indirect relations of such States to the Commonwealth; and the treatment of neutral and belligerent ships in Commonwealth waters in time of war.

The Governor-General may not leave the Commonwealth without having first obtained leave from the Imperial Government, to whom alone he is responsible for his official acts.

The powers and functions of the State Governors are, within their respective States, very similar to those exercised by the Governor-General for the Commonwealth, and are defined by the terms of their Commissions and by the Royal instructions accompanying the same. A State Governor is the official head of the State Legislature, and assents in the name of the Crown to all Bills passed by the Parliament, except those reserved for the Royal Assent. The latter include certain classes of Bills, which are regulated by the Constitution Acts and by the instructions issued by the Imperial Government. The Governors are, under ordinary circumstances, guided by their Executive Councils, the chief matters in which the exercise of discretion is required being the granting or withholding of a dissolution of Parliament when requested by a Premier; the appointment of a new Ministry; or the assenting to, vetoing, or reserving of Bills passed by the legislative chambers. The Governors are authorised, under certain restrictions, to administer the prerogative of mercy by the reprieve or pardon of criminal offenders within their jurisdiction, and to remit fines and penalties due to the Crown. All moneys to be expended for the public service are issued from the Treasury under the Governor's warrant.

In a publication* in which the above matters are exhaustively discussed, it is indicated that there are important functions in the hands of a Governor, and that his influence may extend beyond what is anticipated by those who are unfamiliar with the activities of actual government. This is, however, essentially a matter of individual character. A Governor is entitled to the fullest confidence of his Ministers, to be informed at once of any important decisions taken by his Cabinet, and to discuss them with the utmost freedom. He can point out objections, give advice, deprecate measures, and

* "Responsible Government in the Dominions," A. B. Keith, Oxford, Clarendon Press, 1912, Vol. I.

urge alterations, subject, however, to his remaining always behind the scenes. It should be remembered, moreover, that the State Executive Councils owe their existence to the Royal Letters Patent constituting the office of Governor and that, in law, the Governor is never bound to accept the advice of his Ministers. He cannot indeed do many things without their advice, for it is provided by law (either in the Constitution or Interpretation Acts, or by authoritative usage) that a Governor-in-Council must act on the advice of the Council. He cannot therefore perform any act in Council without a majority, though he can always refuse to act, and thus force his Ministers either to give way on the point at issue or to resign their posts. Even in the case of a ministerial act, he can forbid a Minister to take any action on pain of dismissal. Nominally a Governor will, of course, be justified in accepting the advice of his Ministers as being a correct statement of the facts and law, but he is not bound to be so satisfied, and in matters of law he must exercise his own judgment if he be in doubt. A Governor is not, however, entitled to refuse to act on the advice of his Ministers because he personally does not approve of their action or policy; his duty is not to his own conscience, but to the people of the State which he governs, and he should execute that duty independently of every other consideration.

Although the above furnishes a brief résumé of the powers of a Governor from a legal point of view, in practice the exercise of his powers is generally limited by his ability to persuade his Ministers as to the desirability of any particular course of action. Disagreement with Ministers is only justifiable in extreme cases, and even then it involves the responsibility of finding other Ministers, who must either shew that they have as much support as any other party, or be prepared to administer during a dissolution, pending an appeal to the people. It may be remarked that a Governor who cannot work with Ministers possessing the support of the people must be recalled, unless he has acted on Imperial grounds, and the dispute is not one between him and Ministers, but between the Imperial and State Governments.

It may also be pointed out that a Governor, besides acting according to law, has, within the range of what is lawful, to act according to the instructions of the Secretary of State. He is called upon to do so by the instruments which create his office and appoint him Governor, and he obeys the Secretary of State as the mouthpiece of the Crown. Historically, there have been many cases in which these instructions have placed Governors in opposition to their Ministers.

The present Governor-General is the Right Honourable LORD HENRY WILLIAM FORSTER OF LEPE, P.C., G.C.M.G. He assumed office on the 6th October, 1920. Particulars of previous Governors-General are given on p. 27 hereinbefore.

The following is a list of the Governors of the various States of the Commonwealth :—

New South Wales ..	SIR WALTER EDWARD DAVIDSON, K.C.M.G.
Victoria	Colonel the Rt. Hon. GEORGE EDWARD JOHN MOWBRAY, EARL OF STRADBROKE, K.C.M.G., C.B., C.V.O., C.B.E.
Queensland ..	Lieutenant-Colonel the Rt. Hon. SIR MATTHEW NATHAN, P.C., G.C.M.G.
South Australia ..	Major-General SIR GEORGE TOM MOLESWORTH BRIDGES, K.C.M.G., C.B., D.S.O.
Western Australia ..	Vacant. Lieutenant-Governor—SIR ROBERT FURSE McMILLAN, Kt.
Tasmania ..	Vacant. Administrator of the Government—SIR HERBERT NICHOLLS, Kt.

7. Cost of Parliamentary Government.—The following statement shews the cost of parliamentary government in the Commonwealth and in each State, as well as the cost per head of population, for the year ended the 30th June, 1921. In order to avoid any incorrect conclusions as to the cost of the Governor-General's or Governor's establishment, it may be pointed out that a very large part of the expenditure (with the exception of item "Governor's salary") under the head of Governor-General or Governor represents official services entirely outside the Governor's personal interests, and carried out at the request of the Government.

COST OF PARLIAMENTARY GOVERNMENT, 1920-21.

Particulars.	C'with.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Total.
	£	£	£	£	£	£	£	£
1. (i) Governor-General or Governor—								
Governor's salary ..	10,090	5,000	5,000	2,585	4,000	4,000	2,750	33,335
Official Secretary's salary ..	650	536	536	300	..	350	..	2,502
Governor's establishments ..	6,807	595	5,964	943	..	2,333	545	15,680
Repairs and maintenance of Governor's residences ..	13,127	2,939	2,328	4,626	2,000	1,727	..	28,747
Miscellaneous ..	323	1,012	(e) 435	2,225	295	400	443	5,133
Total ..	30,707	10,082	11,399	8,381	8,921	9,093	5,465	84,048
2. Executive Council—								
Salaries of Officers ..	236	317	672	30	..	350	..	1,605
Other expenses ..	14	150	15	84	..	52	..	315
Total ..	250	467	687	114	..	402	..	1,920
3. Ministry—								
Salaries of Ministers ..	15,368	21,866	9,495	8,933	5,000	6,178	3,700	70,540
Other expenses ..	435	1,436	(d) ..	..	..	5,066	767	7,704
Visits of Commonwealth Ministers to London ..	3,239	..	..	..	..	..	..	3,239
Total ..	19,042	23,302	9,495	8,933	5,000	11,244	4,467	81,483
4. Parliament—								
A. The Upper House :								
Allowances to members ..	34,710	..	..	(k) 1,653	3,401	12,148	4,654	56,566
Railway passes ..	211,996	12,455	(e) 5,000	(f) ..	1,080	(f) ..	750	31,281
Other expenses of members ..	(a) 674	..	..	..	174	150	5	1,003
B. The Lower House :								
Allowances to members ..	69,133	57,819	24,080	33,521	7,243	19,982	8,400	220,178
Railway passes ..	(b) ..	16,398	(b) ..	(f) ..	2,484	(f) ..	1,250	20,132
Other expenses of members ..	(b) ..	2,752	..	1,519	590	300	120	5,231
C. Miscellaneous :								
Salaries of officers and staff ..	17,971	25,753	17,606	5,058	5,802	3,436	4,249	79,675
Printing ..	11,490	15,016	2,746	6,229	6,532	4,733	3,628	101,769
Hansard (including printing) ..	23,384	8,988	6,613	6,267	6,143	..	..	..
Library ..	5,306	775	1,095	1,431	1,045	502	..	..
Refreshment rooms ..	1,737	(c) ..	3,350	1,750	1,753	1,693	..	..
Water, power, light, and heat ..	924	565	493	558	905	..	1,267	54,339
Postage, stores, and stationery ..	3,021	1,702	733	412	470	1,277	..	..
Miscellaneous ..	14,864	4,813	182	992	724	..	..	..
Total ..	195,210	117,036	61,898	59,390	38,146	41,221	24,323	570,224
5. Electoral Office—								
Salaries of officers and staff ..	62,538	(f) ..	1,020	3,017	4,762	2,971	1,767	134,823
Other expenses ..	37,120	(f) ..	13,375	4,602	2,337	1,314	..	..
Total ..	99,658	(f) ..	14,395	7,619	7,099	4,285	1,767	134,823
6. Cost of Elections ..	2,056	(f) ..	14,389	28,988	6,268	11,353	(g) ..	63,054
7. Royal Commissions and Select Committees ..	30,713	19,480	2,803	1,996	3,501	3,528	411	71,432
GRAND TOTAL ..	386,636	200,367	115,066	115,421	68,935	84,126	36,433	1,006,984
Cost per head of population ..	1s. 5.0d.	1s. 11.8d.	1s. 5.8d.	3s. 0.2d.	2s. 9.3d.	5s. 0.6d.	3s. 5.0d.	3s. 8.6d.

(a) Including Lower House. (b) Included in Upper House. (c) Included in Miscellaneous. (d) See note (e). Ministers are allowed £1 per day when travelling. (e) £5,000 is paid to the Railway Department to cover issue of passes to State Governor and Staff, members of Parliament of Victoria and other States, and Executive Councillors. (f) Not available. Each member of both Houses has a pass for the whole of the State Railways. (g) Included in Electoral Office. (h) Exclusive of travelling expenses of members, free passes, special trains, etc. (i) Including Australian Historical Records (£4,282) and stationery. (k) President and Chairman of Committees. (l) See preceding paragraph.

§ 2. Parliaments and Elections.

1. *Qualifications for Membership and for Franchise.*—The conspectus in § 4 of this section in Year Book No. 13 gives particulars as to the legislative chambers in the Commonwealth and State Parliaments, and shews concisely the qualifications necessary for membership and for the franchise in each House. Disqualification of persons otherwise eligible, either as members or voters, is generally on the usual grounds of being of unsound mind or attainted of treason, being convicted of certain offences, and, as regards membership, on the grounds of holding a place of profit under the Crown, being pecuniarily interested in a Government contract, or being an undischarged bankrupt.

2. *The Federal Parliament.*—The Senate consists of 36 members, six being returned by each of the original federating States. Members of this chamber are elected for a term of six years, but by a provision in the Constitution a certain number retire at the end of every third year, although they are eligible for re-election. In accordance with the Constitution the total number of members of the House of Representatives must be as nearly as possible double that of the Senate. In the House of Representatives the States are represented on a population basis, and the numbers stand at present as follows:—New South Wales, 27; Victoria, 21; Queensland, 10; South Australia, 7; Western Australia, 5; Tasmania, 5—total, 75. The Constitution provides for a minimum of five members for each original State. Members of the House of Representatives are elected for the duration of the Parliament, which is limited to three years. In elections for Senators, each State is counted as a single electorate, but an elaborate scheme of subdivision had to be undertaken in order to provide workable electorates in each State for members of the House of Representatives. Members of both Houses are paid at the rate of £1,000 per annum. Further information regarding the Senate and the House of Representatives is given on pages 10 to 14 hereinbefore.

Particulars of Elections. There have been seven complete Parliaments since the inauguration of Federation. The dates of the opening and dissolution of these Parliaments are given on page 26. The fifth Parliament, which was opened on the 9th July, 1913, was dissolved on the 30th July, 1914, in somewhat unusual circumstances. Under Section 27 of the Constitution, it is provided that, should the Senate fail to pass, or pass with amendments, any proposed law previously passed by the House of Representatives, and should the latter House, after a specified interval, again pass the proposed law, with or without the amendments of the Senate, and the Senate for a second time reject it or pass it with amendments to which the lower House will not agree, then the Governor-General may dissolve the two Houses simultaneously. For the first time in the history of the Commonwealth this deadlock between the Senate and the House of Representatives occurred in the second session of the fifth Parliament, and, in accordance with the section of the Constitution referred to above, both Houses were dissolved by the Governor-General. The first session of the eighth Parliament opened on the 26th February, 1920. Particulars regarding Commonwealth elections may be found in the tables given hereunder:—

FEDERAL ELECTION, MARCH, 1901.

State.	Number of Electors.		Electors who Voted.		Percentage of Electors who Voted.	
	Total.	In contested Districts for the House of Representatives.	Senate.	House of Representatives.	Senate.	House of Representatives.
New South Wales ..	331,765	317,902	218,456	211,035	65.81	66.38
Victoria ..	280,661	233,051	149,012	130,610	53.09	56.04
Queensland ..	103,806	103,806	51,336	62,656	49.45	60.35
South Australia ..	154,281	154,281	62,952	62,892	40.80	40.76
Western Australia ..	87,920	70,230	28,733	25,945	32.68	36.95
Tasmania ..	39,528	39,528	18,822	18,572	47.62	46.99
Commonwealth ..	997,961	918,798	529,311	511,710	53.04	55.69

FEDERAL ELECTIONS OF 16th DECEMBER, 1903, 12th DECEMBER, 1906, 13th APRIL, 1910, 31st MAY, 1913, 5th SEPTEMBER, 1914, 5th MAY, 1917, AND 19th DECEMBER, 1919.

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Fem.	Total.	Males.	Fem.	Total.	Males.	Fem.	Total.
THE SENATE.									
New South Wales.	1903	360,285	326,764	687,049	189,877	134,487	324,364	52.70	47.21
	1906	392,077	345,522	737,599	229,654	151,682	381,336	58.57	41.43
	1910	444,269	390,393	834,662	301,167	211,635	512,802	67.79	32.21
	1913	554,028	482,159	1,036,187	405,152	312,703	717,855	73.13	26.87
	1914	576,309	506,820	1,083,129	407,464	294,939	702,403	70.70	29.30
	1917	566,345	528,489	1,094,834	430,514	343,143	773,657	76.92	23.08
	1919	550,383	529,076	1,079,459	400,477	317,088	717,565	72.77	27.23
Victoria	1903	302,069	310,403	612,472	171,839	141,648	313,487	56.89	43.11
	1906	335,886	336,168	672,054	209,252	171,933	381,185	62.30	37.70
	1910	346,050	357,849	703,899	245,666	222,869	468,535	70.99	29.01
	1913	407,852	422,539	830,391	326,856	300,005	626,861	80.14	19.86
	1914	401,055	413,685	814,740	335,057	309,841	644,898	83.54	16.46
	1917	391,794	425,913	817,707	345,804	342,131	687,935	87.81	12.19
	1919	403,050	433,758	836,808	323,187	314,911	638,098	80.07	19.93
Queensland	1903	127,914	99,166	227,080	79,338	44,569	124,507	62.49	37.51
	1906	150,037	121,072	271,109	79,567	44,972	124,539	53.03	46.97
	1910	158,436	120,595	279,031	104,570	66,064	170,634	66.00	34.00
	1913	209,727	156,355	366,082	163,380	117,145	280,525	79.03	20.97
	1914	207,587	160,820	368,407	183,709	112,695	296,404	78.86	21.14
	1917	204,280	174,016	378,296	183,486	153,265	336,751	89.32	10.68
	1919	209,437	179,763	389,200	176,489	153,742	330,231	84.27	15.73
South Australia	1903	85,947	81,828	167,775	35,736	19,049	54,785	41.58	58.42
	1906	97,454	95,664	193,118	43,318	27,199	70,517	44.45	55.55
	1910	105,301	102,354	207,655	63,384	47,110	110,503	60.19	39.81
	1913	124,222	119,804	244,026	103,739	91,724	195,463	83.51	16.49
	1914	131,758	125,595	257,353	110,049	96,195	206,244	83.52	16.48
	1917	132,260	133,519	265,779	103,707	87,471	191,178	78.41	21.59
	1919	132,541	135,694	268,235	97,284	80,808	178,092	73.40	26.60
Western Australia	1903	74,754	42,188	116,942	20,878	6,270	27,148	35.06	64.94
	1906	91,427	54,046	145,473	37,180	15,522	52,712	40.67	59.33
	1910	80,996	53,983	134,979	53,704	30,189	83,893	66.30	33.70
	1913	106,264	73,520	179,784	80,011	52,138	132,149	75.29	24.71
	1914	107,005	75,102	182,107	79,150	50,984	130,134	73.97	26.03
	1917	93,049	74,981	168,030	76,518	54,154	130,672	82.23	17.77
	1919	87,921	75,623	163,544	60,731	42,504	103,235	69.07	30.93
Tasmania	1903	43,515	38,753	82,268	23,720	13,202	37,021	54.53	45.47
	1906	47,306	42,903	90,209	29,164	19,715	48,879	61.65	38.35
	1910	51,731	46,725	98,456	33,539	24,070	57,609	64.83	35.17
	1913	54,856	51,890	106,746	43,539	36,859	80,398	79.37	20.63
	1914	54,754	51,225	105,979	44,504	37,749	82,253	81.28	18.72
	1917	54,405	54,278	108,683	44,634	37,974	82,608	82.04	17.96
	1919	55,906	56,130	112,036	36,366	29,350	65,716	65.05	34.95
Commonwealth	1903	994,484	899,102	1,893,586	527,997	359,315	887,312	53.09	46.91
	1906	1,114,187	985,375	2,109,562	628,135	431,033	1,059,168	56.38	43.62
	1910	1,186,783	1,071,699	2,258,482	902,030	601,946	1,403,976	67.58	32.42
	1913	1,453,949	1,306,267	2,760,216	1,122,677	910,574	2,033,251	77.22	22.78
	1914	1,478,463	1,333,047	2,811,510	1,139,933	902,403	2,042,336	77.10	22.90
	1917	1,444,133	1,391,194	2,835,327	1,184,663	1,018,138	2,202,801	82.03	17.97
	1919	1,439,818	1,410,042	2,849,860	1,094,534	938,403	2,032,937	76.02	23.98

THE HOUSE OF REPRESENTATIVES. (a)

New South Wales	1903	303,254	274,763	578,017	164,133	118,381	282,514	54.12	45.88
	1906	363,723	314,777	678,500	216,150	141,227	357,377	59.43	40.57
	1910	431,702	379,927	811,629	294,049	207,868	501,917	68.11	31.89
	1913	554,028	482,159	1,036,187	405,152	312,703	717,855	73.13	26.87
	1914	491,086	429,906	920,992	351,172	257,531	608,703	71.61	28.39
	1917	484,854	447,437	932,291	370,618	292,925	663,543	76.44	23.56
	1919	527,779	508,129	1,035,908	385,614	308,183	693,797	73.06	26.94
Victoria	1903	241,134	247,089	488,223	142,440	120,329	262,769	59.08	40.92
	1906	335,886	336,168	672,054	209,252	171,933	381,185	62.30	37.70
	1910	346,050	357,849	703,899	245,666	222,869	468,535	70.99	29.01
	1913	407,852	422,539	830,391	326,856	300,005	626,861	80.14	19.86
	1914	401,055	413,685	814,740	335,057	309,841	644,898	83.54	16.46
	1917	391,794	425,913	817,707	345,804	342,131	687,935	87.81	12.19
	1919	403,050	433,758	836,808	323,187	314,911	638,098	80.07	19.93
Queensland	1903	127,914	99,166	227,080	79,338	44,569	124,507	62.49	37.51
	1906	150,037	121,072	271,109	79,567	44,972	124,539	53.03	46.97
	1910	158,436	120,595	279,031	104,570	66,064	170,634	66.00	34.00
	1913	209,727	156,355	366,082	163,380	117,145	280,525	79.03	20.97
	1914	207,587	160,820	368,407	183,709	112,695	296,404	78.86	21.14
	1917	204,280	174,016	378,296	183,486	153,265	336,751	89.32	10.68
	1919	209,437	179,763	389,200	176,489	153,742	330,231	84.27	15.73

(a) For the House of Representatives the number of electors enrolled in contested divisions only is given.

FEDERAL ELECTIONS OF 16TH DECEMBER, 1903, 12TH DECEMBER, 1906, 13TH APRIL, 1910, 31ST MAY, 1913, 5TH SEPTEMBER, 1914, 5TH MAY, 1917, AND 19TH DECEMBER, 1919—continued.

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Fem.	Total.	Males.	Fem.	Total.	Males.	Fem.	Total.

THE HOUSE OF REPRESENTATIVES—continued.

South Australia	1903	23,856	25,789	49,645	12,394	7,728	20,122	51.95	29.97	40.53
	1906	42,065	38,578	80,643	19,850	12,669	32,519	47.19	32.84	40.32
	1910	59,581	61,594	121,175	37,189	29,852	67,041	62.42	48.47	55.33
	1913	90,009	85,304	175,313	74,316	65,701	140,020	82.57	77.02	79.87
	1914	116,594	111,372	227,966	97,182	84,956	182,138	83.35	76.28	79.90
Western Australia	1917	116,568	114,749	231,317	91,642	75,450	167,092	78.61	65.75	72.23
	1919	132,541	135,694	268,235	97,284	80,808	178,092	78.40	59.55	66.40
	1903	41,600	28,324	69,924	16,824	4,409	21,233	40.54	15.57	30.41
	1906	91,427	54,046	145,473	36,976	15,740	52,716	40.44	29.12	36.24
	1910	80,996	53,983	134,979	53,704	30,189	83,893	66.30	55.92	62.15
Tasmania	1913	87,570	62,088	149,658	65,754	44,310	110,064	75.09	71.37	73.93
	1914	89,824	64,736	154,560	66,221	44,456	110,677	73.72	68.67	71.61
	1917	74,370	61,940	136,310	61,531	45,112	106,643	82.74	72.83	78.24
	1919	87,921	75,623	163,544	60,731	42,504	103,235	69.07	56.21	63.12
	1903	43,515	38,753	82,268	23,729	13,284	37,013	54.53	34.28	44.99
Commonwealth	1906	37,779	34,839	72,618	23,753	16,441	40,194	62.87	47.19	55.35
	1910	51,731	46,725	98,456	33,539	24,070	57,609	64.83	51.51	58.51
	1913	54,856	51,890	106,746	43,539	36,859	80,398	79.37	71.03	75.32
	1914	42,995	41,122	84,117	34,789	30,314	65,103	80.91	73.72	77.40
	1917	42,430	43,661	86,091	35,103	30,770	65,873	82.73	70.47	76.52
	1919	55,906	56,130	112,036	36,366	29,350	65,716	65.05	52.29	58.66
Commonwealth	1903	767,809	703,093	1,470,902	432,582	305,820	738,402	56.47	43.50	50.27
	1906	1,020,917	899,480	1,920,397	585,585	403,018	988,553	57.35	44.81	51.48
	1910	1,128,496	1,020,473	2,148,969	768,714	580,912	1,349,626	68.12	56.93	62.80
	1913	1,401,042	1,260,335	2,661,377	1,078,997	876,726	1,955,723	77.01	69.56	73.49
	1914	1,225,990	1,122,451	2,348,441	954,768	772,138	1,726,906	77.88	68.79	73.53
	1917	1,262,527	1,207,938	2,470,465	1,041,552	892,926	1,934,478	82.50	73.92	78.30
	1919	1,395,165	1,367,468	2,762,633	1,063,029	914,816	1,977,845	76.19	66.90	71.59

In the Senate the figures for the year 1906 shew that ballot-papers were issued to 50.21 per cent. of the electors, and are a slight improvement on those for the year 1903, when only about 47 per cent. of the electors visited the polls. There was, however, a substantial increase in the number of electors who voted at the 1910 elections, 62.16 per cent. of the persons on the rolls exercising the franchise. The elections of 1913 shewed a gratifying increase over those of 1910, no less than 73.66 per cent. of the persons on the rolls exercising their right to vote, while in 1914, the percentage was almost as high, viz., 72.64 per cent. It will be seen from the foregoing table that the electors of the Commonwealth are setting a higher value on the privilege of the franchise. The percentage of female voters in 1914, while still considerably below that of the males, shews a marked increase on that of female voters in the earlier years of Federation. At the elections in 1917, the proportion of voters of both sexes was the highest yet recorded. In 1919 the proportion was lower, approximating to the results of the 1913 and 1914 elections.

3. Commonwealth Referenda, 26th April, 1911.—Two proposed laws for the alteration of the Constitution were submitted to the people for acceptance or rejection on the 26th April, 1911. They were (a) The Constitution Alteration (Legislative Powers) 1910, and (b) the Constitution Alteration (Monopolies) 1910. If, in a majority of the States, a majority of the electors voting approve the proposed laws, and if a majority of all the electors voting also approve them, they are presented to the Governor-General for the King's assent. Particulars of the alterations proposed have already been given (see page 15).

Results of the Referenda of 1911 are given in the following table, which shews the number of electors enrolled, electors to whom ballot-papers were issued, and the number of votes in favour of, and against, each of the proposed laws. As will be seen, neither of the proposed laws was approved by the people.

**COMMONWEALTH REFERENDA (LEGISLATIVE POWERS AND MONOPOLIES),
TAKEN ON 26th APRIL, 1911.**

State.	Electors Enrolled.			Electors to whom Ballot Papers were issued.			Legislative Powers.		Monopolies.	
	Males.	Females.	Total.	Males.	Females.	Total.	Total Number of Votes given in Favour of the Prop'd Law.	Total Number of Votes given Not in Favour of the Prop'd Law.	Total Number of Votes given in Favour of the Prop'd Law.	Total Number of Votes given Not in Favour of the Prop'd Law.
N.S.W. ...	461,196	406,998	868,194	233,668	150,520	384,188	135,968	240,605	138,237	238,177
Victoria...	355,381	387,996	723,377	236,194	212,372	448,566	170,288	270,390	171,453	268,743
Q'land ...	167,725	125,278	293,003	101,245	60,890	162,135	69,552	89,420	70,259	88,472
S. Aust. ...	110,217	105,810	216,027	72,761	61,041	133,802	50,358	81,904	50,835	81,479
W. Aust. ...	83,850	54,847	138,697	42,598	19,884	61,482	33,043	27,185	33,592	26,561
Tasmania	54,008	48,318	102,326	33,103	24,950	58,053	24,147	33,200	24,292	32,960
Totals for C'wealth	1,232,377	1,109,247	2,341,624	719,569	528,657	1,248,226	483,356	742,704	488,668	736,392

4. Commonwealth Referenda, 31st May, 1913.—At the general elections that took place on 31st May, 1913, the question of altering the Constitution so as to extend the powers of the Commonwealth was again submitted to the people. The particulars of the proposed laws have been given on page 15 hereinbefore. The results of the Referenda of 1913 are given below, and, as will be seen, none of the proposed laws was approved by the electors.

COMMONWEALTH REFERENDA (LEGISLATIVE POWERS) TAKEN ON 31st MAY, 1913.

State.	Electors Enrolled.			Electors to whom Ballot Papers were issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
N.S.W. ...	554,028	482,159	1,036,187	405,152	312,703	717,855	73.13	64.85	69.28
Victoria ...	407,852	422,539	830,391	326,856	300,005	626,861	80.14	71.00	75.49
Queensland ...	206,727	156,355	363,082	167,145	280,525	79.03	74.92	77.26	
South Aust. ...	124,222	119,804	244,026	103,739	91,724	195,463	83.51	76.56	80.10
Western Aust. ...	106,264	73,520	179,784	80,011	52,138	132,149	75.29	70.92	73.50
Tasmania ...	54,856	51,890	106,746	43,539	36,859	80,398	79.37	71.03	75.32
Totals for Commonwealth	1,453,949	1,306,267	2,760,216	1,122,677	910,574	2,033,251	77.22	69.71	73.66

The following table shews the number of votes cast for and against each of the proposed laws in each of the States:—

COMMONWEALTH REFERENDA, 31st MAY, 1913.—RESULTS OF THE VOTING ON EACH PROPOSED LAW.

State.	Trade and Commerce.		Corporations.		Industrial Matters.		Railway Disputes.		Trusts.		Nationalization of Monopolies.	
	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.	Votes in Favour of Proposed Law.	Votes Not in Favour of Proposed Law.
N.S.W. ...	317,848	359,418	317,668	361,255	318,622	361,044	316,928	361,743	319,150	358,155	301,192	341,724
Victoria...	297,290	307,975	298,479	308,915	297,892	309,804	296,255	310,921	301,729	305,268	287,379	298,326
Q'land ...	146,187	122,813	146,936	123,632	147,171	123,554	146,521	123,850	147,871	122,088	139,019	117,609
S. Aust. ...	96,085	91,144	96,309	91,273	96,626	91,361	96,072	91,262	96,400	90,185	91,411	86,915
W. Aust. ...	66,349	59,181	66,595	59,445	66,451	59,612	65,957	59,965	67,342	58,312	64,988	57,184
Tasmania	34,660	42,084	34,724	42,304	34,839	42,236	34,625	42,296	34,839	41,935	33,176	40,189
Totals	958,419	982,615	960,711	986,824	961,601	987,611	956,358	990,046	967,331	975,943	917,165	941,947

5. Commonwealth Referendum, 28th October, 1916.—A special referendum was held on the 28th October, 1916, when the following question with regard to military service was submitted to the people :—" Are you in favour of the Government having, in this grave emergency, the same compulsory powers over citizens in regard to requiring their military service, for the term of this War, outside the Commonwealth, as it now has in regard to military service within the Commonwealth ? " In New South Wales, Queensland and South Australia the majority of voters were not in favour of the prescribed question ; and in Victoria, Western Australia and Tasmania the majority of votes were cast in its favour, the net result being a majority of 72,476 votes not in favour.

COMMONWEALTH REFERENDUM (MILITARY SERVICE), TAKEN ON
28th OCTOBER, 1916.

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
N.S.W. ..	556,187	499,799	1,055,986	475,669	382,730	858,399	85.52	76.58	81.29
Victoria ..	398,975	425,997	824,972	354,067	342,617	696,684	88.74	80.43	84.45
Queensland ..	199,602	166,440	366,042	173,448	136,473	309,921	86.90	81.99	84.67
South Australia	131,636	131,145	262,781	113,461	97,791	211,252	86.19	74.57	80.39
Western Aust.	94,456	73,146	167,602	82,067	58,581	140,648	86.88	80.09	83.92
Tasmania ..	54,758	53,117	107,875	47,020	41,211	88,231	85.87	77.59	81.79
Federal Territories ..	3,296	1,276	4,572	2,576	892	3,468	78.16	69.91	75.85
Total ..	1,438,910	1,350,920	2,789,830	1,248,308	1,060,295	2,308,603	86.75	78.49	82.75

The following table shews the number of votes cast in each State in favour and not in favour of the prescribed question :—

COMMONWEALTH REFERENDUM, 28th OCTOBER, 1916.—RESULTS OF VOTING
ON THE PRESCRIBED QUESTION.

State.	Votes given in Favour of the Prescribed Question.	Votes given Not in Favour of the Prescribed Question.	Percentage of Votes recorded in Favour of the Prescribed Question.	
			To Formal Votes.	To Electors Enrolled.
New South Wales ..	356,805	474,544	42.92	33.79
Victoria ..	353,930	328,216	51.88	42.90
Queensland ..	144,200	158,051	47.71	39.39
South Australia ..	87,924	119,236	42.44	33.46
Western Australia ..	94,069	40,884	69.71	56.13
Tasmania ..	48,493	37,833	56.17	44.95
Federal Territories ..	2,136	1,269	62.73	46.72
Total ..	1,087,557	1,160,033	48.39	38.98

6. Commonwealth Referendum, 20th December, 1917.—A further referendum was held on 20th December, 1917, the question being, " Are you in favour of the proposal of the Commonwealth Government for reinforcing the Australian Imperial Force oversea ? " The proposal was that, while voluntary enlistment was to continue, compulsory reinforcements should be called up by ballot to make the total reinforcements up to 7,000 per month. In New South Wales, Victoria, Queensland and South Australia the majority of voters were not in favour of the prescribed question ; and in Western Australia, Tasmania and the Federal Territories, the majority of votes were cast in its favour, the net result being a majority of 166,588 votes not in favour.

**COMMONWEALTH REFERENDUM (MILITARY SERVICE), TAKEN ON
20th DECEMBER, 1917.**

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Voters to Electors Enrolled.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
N.S.W. ..	540,713	515,170	1,055,883	473,693	380,201	853,894	87.61	73.80	80.87
Victoria ..	383,511	423,820	807,331	348,211	330,595	678,806	90.80	78.00	84.08
Queensland ..	202,656	175,722	378,378	175,959	134,205	310,164	86.83	76.37	81.97
South Aust. ..	129,249	132,412	261,661	107,116	90,854	197,970	82.88	68.61	75.66
Western Aust.	88,126	74,221	162,347	81,365	54,228	135,593	92.33	73.06	83.52
Tasmania ..	53,030	53,773	106,803	43,981	34,811	78,792	82.94	64.74	73.77
Federal Territories ..	2,855	1,182	4,037	2,254	748	3,002	78.95	63.28	74.36
Total ..	1,400,140	1,376,300	2,776,440	1,232,579	1,025,642	2,258,221	88.03	74.52	81.34

The votes cast in each State were as follows :—

**COMMONWEALTH REFERENDUM, 20th DECEMBER, 1917.—RESULTS OF
VOTING ON THE PRESCRIBED QUESTION.**

State.	Votes given in Favour of the Prescribed Question.	Votes given Not in Favour of the Prescribed Question.	Percentage of Votes recorded in Favour of the Prescribed Question.	
			To Formal Votes.	To Electors Enrolled.
New South Wales ..	341,256	487,774	41.16	32.32
Victoria ..	329,772	332,490	49.79	40.85
Queensland ..	132,771	168,875	44.02	35.09
South Australia ..	86,663	106,364	44.90	33.12
Western Australia ..	84,116	46,522	64.39	51.81
Tasmania ..	38,881	38,502	50.24	36.40
Federal Territories ..	1,700	1,220	58.22	42.11
Total ..	1,015,159	1,181,747	46.21	36.56

7. Commonwealth Referenda, 19th December, 1919.—Referenda were taken on 19th December, 1919, regarding a constitutional extension of Commonwealth powers in legislation and the nationalization of monopolies. In each case the majority of votes was not in favour of the proposed extension.

**COMMONWEALTH REFERENDA (LEGISLATIVE POWERS AND
NATIONALIZATION OF MONOPOLIES), 19th DECEMBER, 1919.**

State.	Electors Enrolled.			Electors to whom Ballot Papers were Issued.			Percentage of Electors to whom Ballot Papers were Issued to Electors Enrolled.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
N.S.W. ..	550,363	529,076	1,079,439	400,477	317,088	717,565	72.77	59.93	66.48
Victoria ..	403,650	433,758	837,408	323,187	314,911	638,098	80.07	72.60	76.20
Queensland ..	209,437	179,763	389,200	176,489	153,742	330,231	84.27	85.52	84.85
South Aust. ..	132,541	135,494	268,035	97,284	80,808	178,092	73.40	59.55	66.40
Western Aust.	87,921	75,623	163,544	60,731	42,504	103,235	69.07	56.21	63.12
Tasmania ..	55,906	56,130	112,036	36,366	29,350	65,716	65.05	52.29	58.66
Total ..	1,439,818	1,410,044	2,849,862	1,094,534	938,403	2,032,937	76.02	65.55	71.33

The votes cast in each State for each of the questions were as follows :—

COMMONWEALTH REFERENDA, 19th DECEMBER, 1919.—RESULTS OF VOTING ON THE PRESCRIBED QUESTIONS.

State.	Proposed Law.	Votes given in Favour of Proposed Law.	Votes given Not in Favour of Proposed Law.	Percentage of Votes recorded in Favour of Proposed Law.	
				To Formal Votes.	To Electors Enrolled.
New South Wales	Constitution Alteration (Legislative Powers) 1919	259,751	390,450	39·95	24·06
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	227,156	365,847	38·31	21·04
Victoria	Constitution Alteration (Legislative Powers) 1919	369,210	201,869	64·65	44·09
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	324,343	188,129	63·29	38·73
Queensland	Constitution Alteration (Legislative Powers) 1919	175,225	130,299	57·35	45·02
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	162,062	122,650	56·92	41·64
South Australia	Constitution Alteration (Legislative Powers) 1919	40,520	119,789	25·28	15·11
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	38,503	112,259	25·54	14·35
Western Australia	Constitution Alteration (Legislative Powers) 1919	48,142	44,892	51·75	29·44
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	45,285	38,584	53·99	27·70
Tasmania	Constitution Alteration (Legislative Powers) 1919	18,509	36,861	33·43	16·52
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	16,531	31,982	34·08	14·76
Total	Constitution Alteration (Legislative Powers) 1919	911,357	924,160	49·65	31·98
	Constitution Alteration (Nationalization of Monopolies) 1919 ..	813,880	859,451	48·64	28·56

8. The Parliament of New South Wales.—The Legislative Council in this State is a nominee chamber, the Legislative Assembly being an elective body. Theoretically the Legislative Council may contain an unlimited number of members, and the number of members at the latest available date was eighty-three. The tenure of the seat is for life; four-fifths of the members must be persons not holding any paid office under the Crown, but this is held not to include officers of His Majesty's sea or land forces on full or half-pay, or retired officers on pensions. The Legislative Assembly consists of ninety

members, who hold their seats during the existence of the Parliament to which they are elected. Nine electorates return five members each, and fifteen return three members each. The duration of Parliament is limited to three years.

Particulars of Elections. Since the introduction of responsible government in New South Wales there have been twenty-five complete Parliaments, the first of which opened on the 22nd May, 1856, and was dissolved on the 19th December, 1857, while the twenty-sixth opened on the 26th April, 1922. The last mentioned Parliament was elected on the 25th March, 1922, under the proportional representation system. Particulars of voting at elections from 1894 to 1922 are given below:—

LEGISLATIVE ASSEMBLY ELECTIONS, NEW SOUTH WALES, 1894 TO 1922.

Date of Opening of Parliament.	Electors upon the Roll.	Members Returned.	Members Unopposed.	Contested Electorates.			
				Electors upon the Roll.	Votes Recorded.	Per-centage of Votes Recorded.	Per-centage of Informal Votes.
7th August, 1894..	298,817	125	1	254,105	204,246	80.38	1.62
13th August, 1895 ..	287,458	125	8	238,233	153,034	64.24	0.88
16th August, 1898 ..	324,339	125	3	294,481	178,717	60.69	0.92
23rd July, 1901 ..	346,184	125	13	270,861	195,359	72.13	0.79
23rd August, 1904 { Males 363,062	326,428	90	2	304,396	226,057	74.26	0.59
Females				262,433	174,538	66.51	
2nd October, 1907 { Males 392,845	353,055	90	5	370,715	267,301	72.10	2.87
Females				336,680	204,650	60.78	
15th Nov., 1910.. { Males 458,626	409,069	90	3	444,242	322,199	72.53	1.78
Females				400,139	262,154	65.52	
23rd Dec., 1913 .. { Males 553,633	484,366	90	3	534,379	385,838	72.20	2.10
Females				468,437	302,389	64.55	
17th April, 1917 { Males 574,308	535,522	90	8	525,681	328,030	62.40	0.94
Females				487,585	295,354	60.57	
27th April, 1920 { Males 607,859	574,736	90	Nil	607,859	363,115	61.21	9.69
Females				574,736	285,594	50.89	
26th April, 1922 { Males 655,045	631,907	90	Nil	655,045	466,949	73.3	3.63
Females				631,907	408,515	66.5	

The franchise was extended to women (*Women's Franchise Act*) in 1902, and was exercised for the first time at a State election in 1904.

9. The Parliament of Victoria.—Both of the Victorian legislative chambers are elective bodies, but there is a considerable difference in the number of members of each House, as well as in the qualifications necessary for members and electors. The number of members in the Upper House in March, 1922, was 34, and in the Lower House, 65. In the Legislative Council the tenure of the seat is for six years, but one member for each province retires every third year, except in the case of a dissolution, when one half of the newly elected members hold their seats for three years only. Members of the Legislative Assembly are elected for the duration of Parliament, which is limited to three years. The franchise was extended to women by the *Adult Suffrage Act 1908*. An elector for the Legislative Assembly may vote only once, plurality of voting having been abolished in 1899; an elector, however, qualified in more than one district, may select that for which he desires to record his vote. A preferential system of voting (see Year Book No. 6, page 1182) was for the first time adopted in Victoria at the election held in November, 1911.

Particulars of Elections. Since the introduction of responsible government in Victoria there have been twenty-six complete Parliaments, the first of which opened on the 21st November, 1856, and closed on the 9th August, 1859, while the twenty-sixth closed on the 6th August, 1921. The first session of the twenty-seventh Parliament opened on the 6th September, 1921, and closed on the 5th January, 1922.

PARTICULARS OF VICTORIAN ELECTIONS, 1902 TO 1922.

Year.	Legislative Council.				Legislative Assembly.			
	Electors on Roll.	Electors in Contested Districts.	Voters in Contested Districts.	Per-centage.	Electors on Roll.	Electors in Contested Districts.	Voters in Contested Districts.	Per-centage.
1902..	134,087	(a)	(a)	(a)	290,241	216,063	141,471	65.47
1904..	172,526	104,865	66,182	63.11	264,709	223,600	149,192	66.72
1907..	180,738	78,512	27,152	34.58	261,088	191,131	117,098	61.26
1908..	185,234	(a)	(a)	(a)	263,876	164,919	88,461	53.64
1910..	240,520	136,479	40,053	35.21	487,661	(a)	(a)	(a)
1911..	249,481	(a)	(a)	(a)	701,451	619,644	394,189	63.61
1913..	270,175	99,646	47,719	47.89	670,775	(a)	(a)	(a)
1914..	284,089	(a)	(a)	(a)	810,026	593,334	319,950	53.92
1916..	300,321	92,421	34,853	37.71	767,378	(a)	(a)	(a)
1917..	308,339	(a)	(a)	(a)	828,230	658,488	356,999	54.21
1918..	310,987	(a)	(a)	(a)	816,172	(a)	(a)	(a)
1919..	317,593	133,058	40,393	30.35	805,703	(a)	(a)	(a)
1920..	326,261	(a)	(a)	(a)	868,848	735,054	468,225	63.70
1921..	336,722	(a)	(a)	(a)	871,456	569,704	326,227	57.26
1922..	353,440	161,731	47,008	29.07	854,033	(a)	(a)	(a)

(a) Not contested.

As the table shews, the number of voters for the Legislative Council is considerably less than that for the Legislative Assembly.

10. The Parliament of Queensland.—No limit was set by the Constitution Act to the number of members of the Legislative Council of Queensland, the total at the latest available date being fifty-five. Members were appointed by the State Governor, and it is provided that not less than four-fifths of the members must consist of persons not holding any office under the Crown, except officers of His Majesty's sea or land forces on full or half-pay, or retired officers on pensions. The members were nominated for life. The Legislative Council has been abolished from March, 1922; the date of the royal assent being the 23rd March, 1922. The Legislative Assembly is composed of seventy-two members, and the State is divided into that number of electoral districts. A modified system of optional preferential voting is in operation in Queensland. (See Year Book No. 6, page 1183.)

Particulars of Elections. Since the establishment of responsible government in Queensland there have been twenty-one complete Parliaments, the first of which opened on the 29th May, 1860, and dissolved on the 20th May, 1863, while the first session of the twenty-second Parliament opened on the 15th November, 1920. At the elections held in May, 1915, the principle of compulsory voting was introduced for the first time in Australia. It will be seen that of the total number of electors enrolled, 79.93 per cent. went to the polls. Statistics regarding the last nine elections are given below:—

ELECTIONS FOR QUEENSLAND LEGISLATIVE ASSEMBLY, 1902 TO 1920.

Year.	Number of Seats.	Number of Candidates Nominated.	Candidates sent to the Poll.	Electors Enrolled.			Electors who Voted.			Percentage of Electors Voting in Contested Electorates.		
				Males.	Fe-males.	Total.	Males.	Fe-males.	Total.	Males.	Fe-males.	Total.
1902	72	159	154	108,548	..	108,548	80,076	..	80,076	78.88	..	78.88
1904	72	140	117	103,943	..	103,943	60,265	..	60,265	74.16	..	74.16
1907	72	185	179	125,140	95,049	220,189	(a)	(a)	152,049	73.42	68.64	71.61
1908	72	137	125	117,385	88,507	205,892	77,632	61,115	138,747	66.13	69.05	67.39
1909	72	145	133	135,841	106,913	242,754	89,609	66,809	156,418	75.34	69.36	72.67
1912	72	144	139	173,801	135,789	309,590	122,844	95,795	218,639	75.92	75.02	75.52
1915	72	143	138	184,627	150,568	335,195	140,396	125,844	266,240	86.46	90.09	88.14
1918	72	(b)	149	233,342	191,074	424,416	176,768	163,901	340,669	75.75	85.78	80.27
1920	72	(b)	144	238,750	206,931	445,681	187,575	168,651	356,226	78.57	81.50	79.93

(a) Incomplete; percentages based on available returns.

(b) Not available.

The election of 1907 was the first State election in Queensland at which women voted, the privilege being conferred under the *Elections Acts Amendment Act 1905*. Some of the returns did not separate the sexes in the figures respecting the number of electors who voted, and the percentage of males and females was therefore calculated on the total returns where the subdivision was made.

11. The Parliament of South Australia.—In this State there is a Legislative Council composed of twenty members and a House of Assembly with forty-six members, both chambers being elective. The State is divided into five districts, which return four members each to the Legislative Council. For the House of Assembly, eight districts return three members each, and eleven districts two members each.

Particulars of Elections. Since the inauguration of responsible government in South Australia there have been twenty-three complete Parliaments, the first of which was opened on the 22nd April, 1857, and dissolved on the 1st September, 1859, while the twenty-third was opened on the 25th July, 1918, and terminated on the 28th February, 1921. The first session of the twenty-fourth Parliament began on the 21st July, 1921. Particulars of voting at the different elections from the year 1900 are given below :—

PARLIAMENTARY ELECTIONS IN SOUTH AUSTRALIA, 1900 TO 1921.

Year.	Electors on Rolls.			(a) Electors who Voted.			(a) Percentage of Electors Voting.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	
LEGISLATIVE COUNCIL.									
1900	..	38,688	9,854	48,542	21,403	3,907	25,310	55.32	39.65
1902	..	38,413	13,496	51,909	29,978	7,940	37,918	78.04	58.83
1905	..	39,011	13,873	52,884	28,820	8,328	37,148	73.88	60.03
1910	..	48,145	16,157	64,302	32,540	9,356	41,896	81.84	65.89
1912	..	59,228	19,985	79,213	40,709	13,016	53,725	80.91	72.56
1915	..	66,614	21,635	88,249	41,436	4,808	46,244	75.69	71.25
1918	..	71,510	23,461	94,971	42,987	11,800	54,787	60.11	50.30
1921	..	69,986	23,062	93,048	38,597	11,309	49,906	64.23	53.96

LEGISLATIVE COUNCIL.

1900	..	33,688	9,854	43,542	21,403	3,907	25,310	55.32	39.65
1902	..	33,413	13,496	46,909	29,978	7,940	37,918	78.04	58.83
1905	..	39,011	13,873	52,884	28,820	8,328	37,148	73.88	60.03
1910	..	48,145	16,157	64,302	32,540	9,356	41,896	81.84	65.89
1912	..	59,228	19,985	79,213	40,709	13,016	53,725	80.91	72.56
1915	..	66,614	21,635	88,249	41,436	4,808	46,244	75.69	71.25
1918	..	71,510	23,461	94,971	42,987	11,800	54,787	60.11	50.30
1921	..	69,986	23,062	93,048	38,597	11,309	49,906	64.23	53.96

HOUSE OF ASSEMBLY.

1902	..	77,147	72,030	149,177	53,471	36,545	90,016	39.31	50.73
1905	..	95,396	92,249	187,645	64,330	50,246	114,576	67.43	54.47
1906	..	96,724	93,438	190,162	60,109	45,997	106,106	62.14	49.22
1910	..	94,656	88,762	183,418	73,464	56,830	130,294	77.61	64.03
1912	..	117,440	106,971	224,411	87,530	73,732	161,262	74.53	68.93
1915	..	128,594	124,797	253,391	70,898	65,157	136,055	77.22	72.64
1918	..	126,669	132,043	258,712	71,501	62,742	134,243	56.45	47.52
1921	..	134,091	137,931	272,022	91,451	77,600	169,051	70.10	57.64

(a) In contested districts.

It is interesting to note that South Australia was the first of the States to grant women's suffrage (under the *Constitution Amendment Act 1894*), the franchise being exercised for the first time at the Legislative Assembly election on the 25th April, 1896.

12. **The Parliament of Western Australia.**—In this State both chambers are elective. For the Legislative Council there are thirty members, each of the ten provinces returning three members, while the Legislative Assembly is composed of fifty members, one member being returned by each of the fifty electoral districts. At the expiration of two years from the date of election to a seat in the Legislative Council, and every two years thereafter, the senior member for the time being for each province retires. Seniority is determined (a) by date of election, (b) if two or more members are elected on the same day, then the senior is the one who polled the least number of votes, (c) if the election be uncontested, or in case of an equality of votes, then the seniority is determined by the alphabetical precedence of surnames and, if necessary, Christian names. Members of the Legislative Assembly are elected for three years.

Particulars of Elections. Since the establishment of responsible government in Western Australia there have been ten complete Parliaments, the first of which was opened on the 30th December, 1890, while the eleventh Parliament was elected on 12th March, 1921. Women's suffrage was granted by the *Electoral Act* of 1899. At the 1921 elections, the first woman member elected to an Australian Parliament was returned. The preferential system of voting in use in Western Australia is described in Year Book No. 6, page 1184. Particulars relating to the last eight Assembly and eight Council elections are given in the tables below :—

PARLIAMENTARY ELECTIONS, WESTERN AUSTRALIA, 1901 TO 1922.

Year.	Electors on the Roll.			In Contested Districts.			Votes Recorded.			Percentage of Electors Voting.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1901 ..	74,874	16,648	91,522	67,967	14,775	82,742	29,832	8,255	38,087	44	56	46
1904 ..	108,861	54,965	163,826	88,524	49,791	138,315	43,285	23,500	66,785	49	47	48
1905 ..	79,025	42,697	121,722	65,296	36,706	102,002	33,482	19,435	52,917	51	53	52
1908 ..	83,060	52,919	135,979	69,277	44,804	114,081	46,411	29,412	75,823	67	66	66
1911 ..	91,814	60,831	152,645	71,675	50,700	122,375	53,355	38,281	91,636	74	75	75
1914 ..	126,598	88,143	214,741	96,503	72,043	168,546	54,612	41,993	96,605	57	58	57
1917 ..	93,106	73,845	166,951	76,445	61,310	137,755	45,463	40,167	85,620	59	65	62
1921 ..	89,523	75,165	164,688	79,161	67,787	146,948	54,747	44,211	98,958	69	65	67

LEGISLATIVE ASSEMBLY.

1901 ..	74,874	16,648	91,522	67,967	14,775	82,742	29,832	8,255	38,087	44	56	46
1904 ..	108,861	54,965	163,826	88,524	49,791	138,315	43,285	23,500	66,785	49	47	48
1905 ..	79,025	42,697	121,722	65,296	36,706	102,002	33,482	19,435	52,917	51	53	52
1908 ..	83,060	52,919	135,979	69,277	44,804	114,081	46,411	29,412	75,823	67	66	66
1911 ..	91,814	60,831	152,645	71,675	50,700	122,375	53,355	38,281	91,636	74	75	75
1914 ..	126,598	88,143	214,741	96,503	72,043	168,546	54,612	41,993	96,605	57	58	57
1917 ..	93,106	73,845	166,951	76,445	61,310	137,755	45,463	40,167	85,620	59	65	62
1921 ..	89,523	75,165	164,688	79,161	67,787	146,948	54,747	44,211	98,958	69	65	67

LEGISLATIVE COUNCIL.

1908 ..	29,255	6,543	35,798	19,233	4,508	23,741	10,210	2,283	12,493	53	51	52
1910 ..	31,983	7,553	39,536	31,290	7,495	38,785	12,020	2,461	14,481	38	33	35
1912 ..	36,716	10,437	47,153	33,490	9,818	43,308	20,733	5,552	26,285	62	57	59
1914 ..	43,299	12,423	55,722	36,793	9,822	46,615	22,963	5,556	28,519	62	57	61
1916 ..	45,325	13,683	59,008	19,950	4,877	24,827	10,672	2,464	13,136	53	51	53
1918 ..	46,272	14,700	60,972	35,962	12,348	48,310	14,043	3,980	17,973	39	31	37
1920 ..	37,137	14,900	52,037	27,621	11,753	39,374	12,450	3,406	15,856	45	29	40
1922 ..	40,360	14,838	55,198	37,964	14,086	52,050	17,524	4,763	22,287	43	32	40

13. **The Parliament of Tasmania.**—In Tasmania there are two legislative chambers—the Legislative Council and the House of Assembly, both bodies being elective. The Council consists of eighteen members, returned from fifteen districts, Hobart returning three, Launceston two, and the remaining thirteen districts sending one member each. There are five House of Assembly districts corresponding to the Commonwealth electoral districts, each returning six members, who are elected under a system of proportional representation which first came into force at the 1909 elections. (See Year Book No. 6, page 1185.) Women's suffrage was first granted in this State under the *Constitution Amendment Act 1903*.

Particulars of Elections. The first Tasmanian Parliament opened on 2nd December, 1856, and closed on 8th May, 1861. There have been twenty complete Parliaments since the inauguration of responsible government. Particulars of the voting at the last eight elections are given hereunder:—

ELECTIONS, HOUSE OF ASSEMBLY, TASMANIA, 1900 TO 1922.

Year.	Electors on Roll.		Electors in Contested Districts.		Votes Recorded.		Percentage of Electors Voting		Percentage of Informal Votes on Votes Recorded
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	
1900	39,002	..	29,022	..	18,872	..	65.02	..	..
(a) 1903	43,999	..	40,267	..	23,766	..	59.87	..	1.43
1906	47,400	41,629	37,120	33,415	23,123	17,194	62.30	51.46	1.21
(b) 1909	50,221	45,563	50,221	45,563	30,509	19,893	60.74	43.67	2.66
1912	52,853	50,660	52,853	50,660	40,713	35,337	77.03	69.73	2.85
1913	53,372	51,920	53,372	51,920	38,700	32,102	72.51	61.83	2.87
1916	54,466	52,855	54,466	52,855	41,427	37,557	78.08	71.05	5.66
1919	53,205	54,336	53,205	54,336	37,037	34,027	69.61	62.62	3.96
1922	54,953	55,591	54,958	55,591	38,529	31,352	70.11	56.40	2.73

(a) Manhood suffrage, Act 64 Vic., No. 5. Universal adult suffrage, Act 3 Edward VII., No. 17, has been prescribed in all subsequent elections. (b) First election with six-member districts and single transferable vote.

During the same period, the percentages of informalities in elections for the Upper House in Tasmania were 4.05, 4.48, 3.29, 6.15, 3.72, and 9.69.

§ 3. Legislation during 1921.

1. *General.*—The following is a brief summary of the more important legislation passed by the Commonwealth and States Parliaments during the year 1921.

2. *Commonwealth.*—(a) *Navigation Act 1920* makes numerous amendments to the *Navigation Act 1912–1919*.

(b) *Funding Arrangements Act* ratifies the agreement made with the United Kingdom respecting the indebtedness of the Commonwealth Government to the Imperial Government.

(c) *Tariff Board Act* provides for the appointment of a Board to investigate and advise on Tariff matters.

(d) *Customs Tariff.* A new scale of Customs Duties is brought into force.

(e) *Excise Tariff.* A fresh Excise Tariff is introduced.

(f) *Customs Tariff (Industries Preservation) Act* makes provision against “dumping.”

(g) *Income Tax Assessment Act.* The averaging of incomes derived from primary production is provided for, as well as rebates in cases of double and treble taxation.

3. *New South Wales.*—(a) *River Murray Waters (Amendment) Act.* An alteration in the agreement is made and the control of the works and property transferred to the River Murray Commission.

(b) *Architects Act.* Provision is made for the registration of Architects and the regulation of their practice.

(c) *Land and Valuation Court Act.* The Land Appeal Court is dissolved and the Land and Valuation Court appointed in its place.

(d) *Agricultural Seeds Act.* This Act regulates the sale of agricultural seeds and prohibits the sale of certain seeds and plants.

(e) *Parliamentary Electorates and Elections (Amendment) Act.* Enrolment of voters is made compulsory, and other amendments are made.

4. *Victoria.*—(a) *The Constitution Act Amendment Act* raises the salaries of members of the Legislative Assembly from £300 to £500 a year.

(b) *Electoral Act.* A member of the State Parliament, who contests a seat in the Commonwealth Parliament and is defeated, may be reinstated to the former Parliament without a poll.

(c) *Victorian Wheatgrowers Corporation Act*. A Board is appointed for the purchase and sale of wheat in Victoria.

(d) *Firearms Act*. The licensing of gun dealers and the issue of certificates to persons to carry pistols are provided for.

(e) *Land Act*. The *Land Act 1915* is amended in various particulars.

5. *Queensland*.—(a) *Animals and Birds Act*. This Act consolidates and amends the law relating to the protection of animals and birds and to the introduction acclimatisation and preservation of animals and birds.

(b) *Cheese Pool Act*. Powers are conferred on a State Cheese Board with respect to the marketing of cheese.

(c) *Magistrates Courts Act*. The laws relating to the jurisdiction of magistrates and Justices of the Peace in civil matters, especially with respect to small debts are amended.

(d) *Workers' Compensation Amendment Acts*. Two Acts amending the *Workers' Compensation Act 1916* to 1918. An alteration is made in the scope of the Act, and provision is made for compensation in the case of children of an injured worker.

(e) *Second-hand Wares Act*. Provision is made for the licensing of dealers in and collectors of second-hand goods.

(f) *Supreme Court Act*. District Courts are abolished, Supreme Court districts are constituted, and sittings of the Supreme Court presided over by a Judge are held within each district.

6. *South Australia*.—(a) *Sex Disqualification (Removal) Act*. This Act allows a woman to be a public notary or a Justice of the Peace.

(b) *Administration of Justice Act*. Provision is made for the reciprocal enforcement of judgments in South Australia and in other parts of His Majesty's Dominions.

(c) *Audit Act*. Previous Acts are repealed and the auditing of public accounts placed in the hands of the Auditor-General, instead of the Commissioner of Audits as heretofore.

(d) *Roads Improvement Act*. A Roads Advisory Board is appointed which has power to recommend what roads are to be main roads, and to advise the Minister as to the amount of moneys to be expended on main roads by each Council and the amounts which should be allocated to Councils annually for the construction and maintenance of main roads.

(e) *Justices Act*. The statutes relating to Justices of the Peace and Magistrates are consolidated and amended.

(f) *Motor Vehicles Act*. New provisions are made for the registration of motor vehicles and the licensing of drivers, as well as with regard to the duties of drivers and owners of motor vehicles.

(g) *Payment of Members Act Amendment Act*. The salaries of members of both Houses of Parliament are raised from £200 to £400 a year each.

(h) *Dairy Cattle Improvement Act*. Bulls are to be licensed and the money derived from such licensing utilised in encouraging the dairy industry of the State.

7. *Western Australia*.—(a) *Stallions Act*. All stallions must be examined and certificated.

(b) *Reciprocal Enforcement of Judgments Act*. This Act facilitates the reciprocal enforcement of judgments and awards in Western Australia and other parts of His Majesty's Dominions.

(c) *Courts of Session Act*. Courts of Session with criminal jurisdiction are established and sessions divisions constituted.

(d) *Gold Buyers Act*. The provisions of the *Mining Act* with respect to the licensing and regulation of gold buyers and gold assayers are incorporated, with amendments, in this Act.

(e) *Auctioneers Act*. Previous Acts are repealed and their provisions consolidated.

(f) *Nurses Registration Act*. All nurses must be registered with the Nurses Registration Board.

(g) *Land Agents Act*. Land agents must be licensed and deposit with the Colonial Treasurer a fidelity bond for £200.

(h) *Stamp Act*. A consolidation of all previous Stamp Acts.

(i) *Inspection of Machinery Act*. The *Inspection of Machinery Act* of 1904 is repealed, and its provisions consolidated and amended.

(j) *Architects Act*. Architects must be registered with the Architects Board of Western Australia.

8. *Tasmania*.—(a) *State Loans to Local Bodies Act*. This Act authorises and regulates the granting of loans by the State to local bodies for local works.

(b) *Maintenance Act*. The law relating to the maintenance of deserted wives and children and other persons is consolidated and amended and the obtaining and enforcing of maintenance orders in Tasmania and other countries in which reciprocal provisions are in force are provided for and facilitated.

(c) *Indeterminate Sentences Act*. Repeals *Habitual Criminals and Offenders Act of 1907*, consolidates the provisions thereof and provides for a Board to deal with persons sentenced to indeterminate detention.

(d) *Electoral Amendment Act*. Amendments are made to the *Electoral Act 1907*.

(e) *Marine Act*. The provisions of previous Acts with respect to the constitution and regulation of Marine Boards and Harbour Trusts are consolidated and amended, as well as those relating to pilotage, safety of ships, survey of vessels and courts of inquiry and survey.

§ 4. Administrative Government.

In previous issues of the Official Year Book a conspectus was given in tabular form of the various departments in each State, together with a list of the principal Acts administered by them and the matters dealt with by them or under their control. See Official Year Book No. 12, pp. 924 *et seq.*

§ 5. Conspectus of Acts relating to the Constitutions of the Commonwealth and the Australian States.

The principal provisions of the Acts in force relating to the Constitution of the Commonwealth and the six States were given in summarized form in Official Year Book, No. 13, pp. 928 *et seq.* Some minor alterations have been made since the summary was prepared.

SECTION XXVI.

LOCAL GOVERNMENT.

§ 1. Introduction.

1. **Early History and Systems of Local Government.**—A description of the systems of Local Government and their development in the several States of the Commonwealth was published in 1919 by the Commonwealth Bureau of Census and Statistics in a separate work entitled "Local Government in Australia." The early history of Local Government in Australia was also treated in detail. In addition, descriptions were given of the various systems of water supply and sewerage, fire brigades, harbour trusts and marine boards, together with the bodies controlling the same.

Limits of space preclude the incorporation of information regarding the constitution etc., of municipal and other bodies contained in the publication referred to except in cases where fresh developments have taken place.

§ 2. Local Government Systems.

1. **New South Wales.**—(i) *Present System of Local Government.* The law relating to local government in New South Wales is now contained in Act No. 41 of 1919; this Act, however, does not affect the special Acts applying to the City of Sydney. Practically the whole of the State, with the exception of the Western Division, has been brought under the operation of this Act, the total area incorporated at the end of 1920 being 183,985 square miles, of which 181,140 square miles are comprised within shires and 2,845 within municipalities. The areas incorporated comprise the whole of the eastern and central divisions of the State, with the exception of Lord Howe Island, the islands in Port Jackson, and the quarantine station at Port Jackson.

The Act No. 41 of 1919, which consolidated all previous Acts, came into operation on the 1st January, 1920; it provides for the continuation of existing shires and municipalities, for the creation of new ones, and for their reconstitution by uniting, dividing, altering, or converting areas.

(ii) *Municipalities.* Including the City of Sydney there were 185 municipalities in New South Wales at the end of 1920; of these, forty were in the suburbs of Sydney and eleven in the district of Newcastle and suburbs.

(a) *Capital Value, Area, Population, and Rates Levied.* The following table shows the improved capital value, the area, population, number of buildings, and amount of rates levied in municipalities for the years 1901 and 1916 to 1920:—

NEW SOUTH WALES.—MUNICIPALITIES, IMPROVED CAPITAL VALUE, AREA, POPULATION, NUMBER OF BUILDINGS, AND TOTAL RATES LEVIED, 1901 AND 1916 TO 1920.

Year ended 31st Dec. (a)	Sydney and Suburbs.					Country.				
	Improved Capital Value.	Area.	Popu- lation.	Number of Dwel- lings.	Total Rates Levied.	Improved Capital Value.	Area.	Popu- lation.	Number of Dwel- lings.	Total Rates Levied.
	£	Acres.	No.	No.	£	£	Acres.	No.	No.	£
1901	88,116,600	91,220	(b) 487,900	94,907	277,457	36,429,600	1,732,302	371,330	73,862	127,564
1916	176,659,503	95,259	750,260	(c)	1,153,987	59,422,910	1,742,275	446,800	(c)	485,104
1917	183,469,822	95,259	762,480	(c)	1,124,590	62,055,080	1,742,275	453,800	(c)	516,816
1918	188,674,508	95,259	777,140	(c)	1,165,839	63,368,253	1,710,675	463,500	(c)	542,700
1919	194,495,477	95,259	811,910	(c)	1,306,394	66,053,272	1,710,475	482,860	(c)	586,258
1920	211,994,623	95,259	881,594	(c)	1,559,933	77,900,508	1,725,875	525,264	(c)	694,409

(a) Prior to 1908 the municipal year ended on the first Monday in February, since when the municipal year closes on 31st December. (b) Census, March, 1901. (c) Not available.

The following table gives a comparison of the unimproved and improved values for the years 1916 to 1920 inclusive:—

NEW SOUTH WALES.—MUNICIPALITIES, UNIMPROVED AND IMPROVED CAPITAL VALUES, 1916 TO 1920.

Year.	Sydney.	Suburbs.	Metropolis.	Country.	Total.
UNIMPROVED VALUE.					
	£	£	£	£	£
1916	31,168,904	34,719,417	65,888,321	23,378,626	89,266,947
1917	31,130,368	36,808,755	67,939,123	24,350,474	92,289,597
1918	31,880,295	38,176,261	70,056,556	24,629,668	94,686,224
1919	31,831,054	39,672,190	71,503,244	25,289,371	96,792,615
1920	33,077,620	46,847,825	79,925,445	29,060,263	108,985,708
IMPROVED VALUE.					
1916	80,264,720	96,394,785	176,659,505	59,422,910	236,082,415
1917	81,976,260	101,493,562	183,469,822	62,055,080	245,524,902
1918	82,027,200	106,647,308	188,674,508	63,368,253	252,042,761
1919	82,808,760	111,686,717	194,495,477	66,059,272	260,554,749
1920	84,580,400	127,414,223	211,994,623	78,900,508	290,895,131

(b) *Revenue.* The following table gives particulars of the revenue of municipalities for the year ending 31st December, 1920:—

NEW SOUTH WALES.—MUNICIPALITIES, REVENUE, 1920.

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
General fund	1,724,858(a)	1,182,355	840,021	2,022,376 (b)
Trading accounts		1,453	281,846	283,299 (b)
Special and local funds		15,635	234,453	250,088 (b)
Loan funds(c)		696	745	1,441 (b)
Gross revenue	1,724,858(a)	1,200,139	1,357,065	4,282,062

(a) Items of revenue and expenditure for the City of Sydney cannot be allocated to the different headings shown for municipalities. (b) Exclusive of Sydney. (c) Most of the Loan Funds are included in the General Fund, under provisions of the Local Government Act.

(c) *Expenditure.* The following table gives particulars of expenditure of municipalities for the year ending 31st December, 1920:—

NEW SOUTH WALES.—MUNICIPALITIES, EXPENDITURE, 1920.

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
General fund	1,747,972 (a)	1,130,981	810,398	1,941,379 (b)
Trading accounts		2,071	263,179	265,250 (b)
Special and local funds		12,628	219,242	231,870 (b)
Loan funds(c)		85	745	830 (b)
Gross expenditure	1,747,972 (a)	1,145,765	1,293,564	4,187,301

(a) See note (a) to preceding table. (b) Exclusive of Sydney. (c) See note (c) to preceding table.

(d) *Assets and Liabilities.* The financial position of the municipalities as at the 31st December, 1920, is shewn by the following statement of assets and liabilities of the various funds :—

NEW SOUTH WALES.—MUNICIPALITIES, ASSETS AND LIABILITIES, 1920.

Particulars.	Sydney.	Suburbs.	Country.	Total.
	£	£	£	£
<i>Assets—</i>				
General fund	12,714,012 (a)	1,015,069	930,668	1,945,737 (b)
Trading accounts		22,128	746,754	768,882 (b)
Special and local funds		7,255	1,843,001	1,850,256 (b)
Loan funds (c)		302	12,196	12,498 (b)
Total	12,714,012 (a)	1,044,754	3,532,619	17,291,385
<i>Liabilities—</i>				
General fund	12,243,384 (a)	1,354,497	525,284	1,879,781 (b)
Trading accounts		22,746	442,426	465,172 (b)
Special and local funds		2,120	1,695,895	1,698,015 (b)
Loan funds (c)		2,020	11,827	13,847 (b)
Total	12,243,384 (a)	1,381,383	2,675,432	16,300,199

(a) See note (a) to last table on preceding page. (b) Exclusive of Sydney. (c) See note to previous table.

(iii) *Shires.* The total area of the 136 shires constituted under the new system is 181,140 square miles, and the population on the 31st December, 1920, was 670,123.

The shires vary in area from 36 square miles in the case of Ku-ring-gai, immediately north of the metropolis, to 5,730 square miles in the case of Lachlan in the Condobolin district.

(a) *Valuation and Rates Levied.* The unimproved capital value of the shires in 1920 was £120,872,326, but it is not possible to give the improved capital value or the assessed annual value, as the shires are not compelled to make these valuations. The total amount of all rates levied in 1920 was £868,809.

(b) *Revenue.* The principal heads of revenue for the last five years are shewn in the following table :—

NEW SOUTH WALES.—INCOME OF SHIRES, 1916 TO 1920.

Particulars.(a)	1916.	1917.	1918.	1919.	1920.
	£	£	£	£	£
<i>General Fund—</i>					
General rates (including interest)	633,973	672,473	710,983	742,026	825,781
Government endowment	143,259	151,446	162,188	153,234	156,429
Public works	205,277	167,696	157,737	230,673	196,045
Health administration	4,087	3,987	3,865	13,731	79,410
Public services	11,162	10,682	11,487	12,481	14,630
Shire property	12,449	14,343	14,258	15,539	13,456
Miscellaneous	7,507	7,303	7,427	7,192	12,125
<i>Special, Local, and Loan Funds</i>	75,309	84,374	93,101	114,885	57,540
Total revenue	1,093,023	1,112,304	1,161,046	1,289,761	1,355,416

(a) The receipts for Public Works, Health Administration, Public Service, etc., include Government grants during 1920 amounting to £168,022.

(c) *Expenditure.* The following statement shows the expenditure of shires during the years 1916 to 1920 inclusive :—

NEW SOUTH WALES.—EXPENDITURE OF SHIRES, 1916 TO 1920.

Particulars.	1916.	1917.	1918.	1919.	1920.
	£	£	£	£	£
<i>General Fund—</i>					
Administrative expenses ..	100,224	100,649	99,391	115,657	146,762
Public works ..	843,803	901,730	916,351	1,013,337	994,731
Health administration ..	8,513	9,149	9,292	26,237	84,282
Public services ..	15,229	18,256	19,370	21,293	26,239
Shire property ..	14,969	16,211	16,884	17,037	14,935
Miscellaneous ..	17,510	15,912	15,526	16,034	8,589
<i>Special, Local, and Loan Funds</i>	78,649	78,819	86,905	98,403	50,210
Total expenditure ..	1,078,897	1,140,726	1,163,719	1,307,998	1,325,748

(d) *Assets and Liabilities.* The financial position of the Shires at the end of the year 1920 showed that there was an excess of assets of £405,044. The following table gives particulars of assets and liabilities as at the 31st December, 1920 :—

NEW SOUTH WALES.—ASSETS AND LIABILITIES OF SHIRES, 1920.

Assets.			Liabilities.		
	£			£	
General fund ..	589,154		General fund ..	206,120	
Trading accounts ..	25,548		Trading accounts ..	21,497	
Street lighting account ..	8,704		Street lighting account ..	957	
Roads, bridges, and streets account ..	9,890		Roads, bridges, and streets account ..	1,984	
Drainage account ..	271		Drainage account ..	350	
Fire brigade account ..	969		Fire brigade account ..	30	
Water supply account ..	8,762		Water supply account ..	6,491	
Parks account ..	16,652		Parks account ..	17,208	
Miscellaneous ..	3,255		Miscellaneous ..	3,524	
			Total ..	258,161	
			Excess of assets ..	405,044	
Total ..	663,205		Total ..	663,205	

2. *Victoria.*—(i) *Present System of Local Government.* Local Government is now administered under the Act of 1915 throughout the whole of the State (with the exception of French Island) which is divided into cities, towns, boroughs, and shires. Melbourne and Geelong, having been incorporated under special statutes prior to the establishment of a general system of local government, are not subject to the provisions of the Local Government Act except in a few details.

In addition to the endowment of £50,000, the municipalities received from the Government during the financial year 1920–21 a sum of £66,002 out of the Licensing Fund as the equivalent for (a) fees for licenses, (b) fees for the registration of brewers and spirit merchants, and (c) fines, penalties, and forfeitures incurred under the Licensing Act 1915.

(ii) *Municipalities.*—*Number, Population, and Value of Ratable Property.* The following table shews the number of cities, towns, boroughs, and shires, their estimated population, the number of ratepayers and dwellings, and the value of ratable property for the years 1901 and 1917 to 1921 inclusive :—

VICTORIA.—PARTICULARS OF MUNICIPALITIES, 1901 AND 1917 TO 1921.

Year ending 30th September.	Number of Municipa- lities.	Estimated Population.	Number of Ratepayers (both sexes).	Estimated Number of Dwellings.	Estimated Value of Ratable Property.	
					Total.	Annual.
CITIES, TOWNS, AND BOROUGH.						
					£	£
1901	58	627,237	153,783	130,358	67,302,423	4,765,632
1917	51	829,368	213,520	188,528	154,105,571	8,587,302
1918	52	844,970	219,076	193,398	158,777,843	8,912,303
1919	52	859,470	224,757	197,689	164,306,704	9,227,807
1920	52	877,880	228,518	200,206	172,838,636	9,687,320
1921	55	902,470	237,037	204,547	193,947,624	10,864,184

SHIRES.

					£	£
1901	150	571,683	159,128	122,645	106,839,331	5,771,865
1917	139	618,896	187,894	142,511	172,309,539	8,732,116
1918	139	613,380	186,551	141,313	172,558,872	8,735,794
1919	138	622,260	188,032	141,951	176,297,529	8,922,859
1920	138	628,420	188,892	142,570	184,599,186	9,340,172
1921	138	639,930	198,801	145,067	205,555,121	10,350,524

(iii) *Municipal Assets and Liabilities.* The assets of municipalities may be classified under three heads—(a) the municipal fund, (b) the loan fund, and (c) property; the liabilities under two heads—(a) the municipal fund, and (b) the loan fund. The following table shews the amount of municipal assets and liabilities for the years 1901 and 1916 to 1920 :—

VICTORIA.—MUNICIPAL ASSETS AND LIABILITIES, 1901 AND 1916 TO 1920.

Items.	1901.	1916.	1917.	1918.	1919.	1920.
ASSETS.						
	£	£	£	£	£	£
MUNICIPAL FUND—						
Uncollected rates	187,205	146,491	138,617	132,217	133,585	133,573
Other assets	122,581	392,876	442,388	427,046	550,283	483,724
LOAN FUND—						
(a) Sinking funds—						
Amount at credit	675,310	792,445	745,784	596,550	465,132	489,332
Arrears due	1,391	894	1,732	5,054	1,093	3,098
(b) Unexpended balances	394,136	209,363	286,206	238,906	204,761	221,405
PROPERTY—						
Buildings, markets, etc.	2,507,441	3,750,947	3,848,320	3,871,232	3,938,068	4,077,892
Waterworks	197,675	177,050	252,069	268,815	271,581	270,147
Gasworks	63,732	105,124	109,215	110,819	114,505	117,704
Total	4,149,471	5,575,130	5,824,331	5,650,639	5,679,008	5,798,875

VICTORIA.—MUNICIPAL ASSETS AND LIABILITIES, 1901 AND 1916 TO 1920
—continued.

Items.	1901.	1916.	1917.	1918.	1919.	1920.
LIABILITIES.						
	£	£	£	£	£	£
MUNICIPAL FUND—						
Arrears due sinking funds ..	1,021	834	1,732	5,054	1,093	3,098
Overdue interest ..	9,413	14,456	24,425	6,920	6,811	7,091
Bank overdrafts ..	157,046	252,130	233,160	317,410	484,785	442,326
Other liabilities ..	112,297	221,183	233,189	269,947	280,475	281,673
LOAN FUNDS—						
Loans outstanding ..	4,253,304	5,869,260	6,030,343	5,764,050	5,041,429	5,192,069
Due on loan contracts ..	52,826	15,888	42,428	47,145	120,192	220,188
Due on current contracts ..	51,134	73,005	98,538	78,115	64,037	85,368
Total ..	4,637,041	6,446,756	6,663,815	6,488,641	6,007,622	6,231,815

(iv) *Revenue and Expenditure of Municipalities.* The following table shows the revenue from various sources, and the expenditure under various heads, exclusive of loan revenue and expenditure, of municipalities during the years 1901 and 1916 to 1920 :—

VICTORIA.—REVENUE AND EXPENDITURE OF MUNICIPALITIES,
1901 AND 1916 TO 1920.

Items.	1901.	1916.	1917.	1918.	1919.	1920.
REVENUE.						
	£	£	£	£	£	£
Taxation ..						
Rates ..	722,346	1,346,439	1,395,723	1,462,640	1,560,968	1,750,778
Licenses ..	104,499	105,772	108,651	109,916	136,517	135,383
Dog fees ..	14,965	20,528	20,883	21,481	21,074	22,575
Market and weigh- bridge dues ..	49,623	63,812	67,726	71,737	85,240	87,845
Government endowments and grants ..	175,972	74,372	68,364	62,460	96,429	74,563
Contributions for streets, etc. ..	24,999	52,045	54,620	63,910	93,900	73,182
Sanitary charges ..	48,253	91,125	96,484	101,791	101,996	116,096
Rents ..	54,117	59,006	62,953	65,821	69,845	85,517
Other sources ..	89,210	441,128	487,962	566,788	714,156	879,024
Total ..	1,283,984	2,254,227	2,363,366	2,526,544	2,880,125	3,224,963

EXPENDITURE.						
	£	£	£	£	£	£
Salaries, etc. ..	139,270	206,353	210,034	214,797	226,692	246,851
Sanitary work, street cleaning, etc. ..	132,542	236,766	243,774	244,984	248,956	306,775
Lighting ..	86,059	95,420	97,685	98,511	100,679	102,945
Fire brigades' contributions ..	16,769	32,086	33,939	32,786	35,120	39,637
Public works { Construction ..	244,315	238,773	200,151	232,977	294,874	208,326
Maintenance ..	345,334	847,505	897,136	1,046,474	1,152,247	1,385,847
Formation of private streets, etc. ..	23,350	68,024	63,499	75,474	111,125	82,746
Redemption of loans ..	27,745	101,461	112,020	124,797	137,688	128,664
Interest on loans ..	197,810	262,760	274,113	277,435	257,057	264,147
Charities ..	13,407	18,801	20,350	19,977	21,103	25,031
Other expenditure ..	103,403	180,018	186,310	178,043	332,347	313,650
Total ..	1,330,004	2,287,967	2,339,011	2,546,255	2,917,888	3,104,119

3. *Queensland.*—(i) *Present System of Local Government.* The existing scheme of local government in the State of Queensland is regulated by the provisions of the Local Authorities Act 1902, with its amendments in 1903, 1905, 1910, 1912, 1913, 1917, and 1920, the State being divided into cities and towns and shires.

(ii) *Area, Population, Number of Dwellings, Rates, Assets and Liabilities of Cities, Towns and Shires.* The following table gives particulars of the area, population, number of inhabited tenements, assets and liabilities of cities and towns, and of shires, for each year from 1916 to 1920 :—

QUEENSLAND.—PARTICULARS OF CITIES AND TOWNS AND SHIRES,
1916 TO 1920.

Year.	Municipality.	Area.	Population.	Number of Inhabited Dwellings.	Capital Value.	Assets.	Liabilities.		
							Government Loans.	Other.	Total.
1916	Cities and Towns	Square Miles. 395	No. 295,495	No. 58,223	£ 16,361,028	£ 1,741,355	£ 258,225	£ 1,170,038	£ 1,428,263
	Shires ..	669,499	420,377	91,297	45,919,038	552,750	190,752	133,352	324,104
	Total ..	669,894	715,872	149,520	62,280,061	2,294,105	448,977	1,303,390	1,752,367
1917	Cities and Towns	406	320,450	62,839	16,771,990	1,829,543	261,385	1,217,598	1,478,978
	Shires ..	669,488	409,845	88,437	45,276,512	567,438	181,862	124,432	306,294
	Total ..	669,894	730,295	151,276	62,048,502	2,396,981	443,247	1,342,025	1,785,272
1918	Cities and Towns	507	330,272	65,588	17,436,371	1,988,957	270,820	1,328,205	1,599,025
	Shires ..	669,387	411,278	88,384	45,553,989	594,828	173,024	179,795	352,819
	Total ..	669,894	741,550	153,972	62,990,360	2,583,785	443,844	1,508,000	1,951,844
1919	Cities and Towns	510	346,019	66,879	17,648,597	2,037,948	304,204	1,363,391	1,667,595
	Shires ..	669,384	425,855	92,030	46,259,148	625,883	191,551	206,721	393,272
	Total ..	669,894	771,874	158,909	63,907,745	2,663,831	495,755	1,570,112	2,065,867
1920	Cities and Towns	510	330,044	69,340	19,066,071	2,161,774	457,170	1,410,016	1,867,186
	Shires ..	669,384	422,683	95,173	47,259,059	723,871	299,361	214,262	513,628
	Total ..	669,894	752,727	164,513	66,325,130	2,885,645	756,531	1,624,278	2,380,809

(iii) *Receipts and Expenditure of Cities, Towns, and Shires.* The following table shews the receipts and expenditure (including loan moneys) of cities and towns and of shires, as well as the total receipts and expenditure of all municipalities, for each year from 1916 to 1920 :—

QUEENSLAND.—REVENUE AND EXPENDITURE OF CITIES AND TOWNS
AND SHIRES, 1916 TO 1920.

Year.	Municipality.	Receipts.				Expenditure.					
		From Govern- ment.	From Rates.	From other Sources.	Total.	On Public Works.	Loan Redemp- tion.	Office Ex- penses and Salaries.	Other Expenses. (a)	Total.	
1916	Cities and Towns	£ 29,541	£ 460,252	£ 86,139	£ 575,932	£ 478,962	£ 20,221	£ 50,388	£ 87,970	£ 637,541	
	Shires ..	23,680	443,843	63,361	530,884	366,007	13,587	82,240	71,902	533,736	
	Total ..	53,221	904,095	149,500	1,106,816	844,969	33,808	132,628	159,872	1,171,277	
1917	Cities and Towns	30,012	495,510	96,959	622,481	475,689	24,062	56,179	92,298	648,228	
	Shires ..	16,138	485,375	71,175	572,688	395,687	12,250	86,112	61,215	555,264	
	Total ..	46,150	980,885	168,134	1,195,169	871,376	36,312	142,291	153,513	1,203,492	
1918	Cities and Towns	16,937	535,124	103,477	655,538	455,824	21,916	61,731	141,366	680,837	
	Shires ..	23,448	506,447	69,147	599,042	502,390	13,864	89,387	61,252	666,893	
	Total ..	40,385	1,041,571	172,624	1,254,580	958,214	35,780	151,118	202,618	1,347,730	
1919	Cities and Towns	45,833	612,476	140,164	798,473	577,993	20,925	68,585	193,455	860,958	
	Shires ..	41,000	538,769	110,707	690,476	507,506	13,080	97,047	95,385	718,018	
	Total ..	86,833	1,151,245	250,871	1,488,949	1,085,499	39,005	165,632	288,840	1,578,976	
1920	Cities and Towns	180,110	700,321	144,403	1,024,834	774,969	30,234	76,703	192,742	1,074,648	
	Shires ..	123,554	616,025	120,464	860,043	618,287	18,136	110,603	84,781	831,807	
	Total ..	303,664	1,316,346	264,867	1,884,877	1,393,256	48,370	187,306	277,523	1,906,455	

(a) Including interest on loans.

4. *South Australia.*—(i) *Present System of Local Government.* The more settled portion is under the jurisdiction of municipal corporations under the Act of 1890 and its amendments, and of district councils under the Act of 1914, as amended in 1918. Subsidies of 25 per cent. on current rates collected are paid to corporations and to district councils. Votes are annually provided by Parliament of about £200,000, for payment to corporations and district councils as a contribution towards the cost of main roads throughout the State and other roads in newly-settled areas.

(ii) *Finances of Corporations and District Councils.* The subjoined tables show the amounts of assessments and the revenue and expenditure of corporations and of district councils for the financial years 1901 and 1916 to 1920; the figures given are exclusive of the Main Roads Funds, particulars regarding which may be found in the section of this book on "Roads and Bridges."

SOUTH AUSTRALIA.—ASSESSMENT, REVENUE AND EXPENDITURE OF LOCAL AUTHORITIES, 1901 AND 1916 TO 1920 (EXCLUSIVE OF MAIN ROADS FUNDS).

Year. (a)	Amount of Assessment (Annual Value).	Revenue.				Expenditure.	
		From Rates.	From Subsidies.	Other Sources.	Total.	On Public Works.	Total.

CORPORATIONS.

		£	£	£	£	£	£	£
1901	..	1,177,850	87,289	9,733	49,342	146,364	55,533	146,091
1916	..	2,006,802	176,870	23,448	67,136	267,454	160,516	270,929
1917	..	2,037,649	189,594	24,084	77,517	291,195	199,532	289,235
1918	..	2,103,195	194,497	26,821	76,589	297,907	206,122	296,590
1919	..	2,237,394	215,605	25,280	93,207	334,092	254,559	340,172
1920	..	2,300,858	233,645	27,347	103,208	364,200	278,283	379,709

DISTRICT COUNCILS.

1901	..	1,412,507	63,321	15,225	51,919	130,465	65,406	128,499
1916	..	2,662,066	148,895	34,487	27,135	210,517	136,380	189,582
1917	..	2,704,374	155,677	36,674	30,143	222,494	161,886	205,079
1918	..	2,767,309	162,718	38,298	32,091	233,107	194,734	250,610
1919	..	2,829,198	167,161	38,555	43,906	240,622	206,952	270,108
1920	..	2,938,336	180,414	37,730	80,809	298,953	232,693	310,676

(a) Up to and including the year 1903, the financial year for corporations ended on the 31st December, but after that date ends on the 30th November. The financial year for district councils ends on the 30th June.

5. *Western Australia.*—(i) *Present System of Local Government.* In this State there are three forms of local authorities, namely—(i) Municipalities, (ii) Road Districts, and (iii) Local Boards of Health, the two former covering the whole of the State.

(ii) *Area, Population, etc., of Municipalities.* Returns regarding the area, population, etc., of municipalities are shown in the table hereunder:—

WESTERN AUSTRALIA.—NUMBER OF MUNICIPALITIES, AREA, POPULATION, AND NUMBER OF DWELLINGS, 1901 AND 1916 TO 1921.

Year ended the 31st October.	Number of Municipalities.	Area.	Population.	Dwellings.			Amount Payable in respect of Rates.
				Occupied.	Unoccupied.	Total.	
	No.	Acres.	No.	No.	No.	No.	£
1901	.. 42	71,721	(a) 96,807(b)	(b) 20,989	(b) 967	(b) 21,956	(c)
1916	.. 30	60,160	152,671	(c)	(c)	33,763	168,148
1917	.. 28	59,560	150,562	(c)	(c)	33,733	171,239
1918	.. 25	58,070	148,431	(c)	(c)	33,789	173,828
1919	.. 23	60,911	151,575	(c)	(c)	33,626	179,945
1920	.. 23	60,911	(e) 166,222	(e) 34,119	(e) 1,373	(e) 35,492	194,157
1921	.. 22	(d) 60,911	(e) 166,222	(e) 34,119	(e) 1,373	(e) 35,492	261,680

(a) Census figures, 1901. (b) Returns for thirty-nine municipalities only. (c) Not available.

(d) The acreage of one municipality is included, which was dissolved on 30th June, 1921. (e) Census figures of 4th April, 1921.

Complete particulars of improved or unimproved capital value are not available. In the year 1916 the capital value of ratable property in municipalities was £26,817,864; in 1917, £24,933,426; in 1918, £26,077,875; in 1919, £26,172,435; and in 1920, £26,280,406.

(iii) *Revenue and Expenditure of Municipalities.* The following table gives particulars as to the revenue and expenditure of municipalities during the years 1901 and 1916 to 1921 :—

WESTERN AUSTRALIA.—REVENUE AND EXPENDITURE OF MUNICIPALITIES, 1901 AND 1916 TO 1921.

Year ended the 31st October—	Revenue.				Expenditure.			
	From Rates.	From Govt. Grants.	From other Sources. (a)	Total.	Works and Improvements.	Disbursements in respect of Loans.	Other Expenses.	Total.
	£	£	£	£	£	£	£	£
1901 ..	78,022	66,860	82,246	227,128	111,241	23,809	79,365	214,415
1916 ..	166,617	9,462	437,258	613,337	120,411	127,559	370,390	618,360
1917 ..	167,997	7,813	375,541	551,351	73,991	133,954	334,002	541,947
1918 ..	171,315	1,870	374,992	548,177	75,086	135,617	327,784	538,487
1919 ..	177,408	3,595	377,421	558,424	71,907	135,448	351,365	558,720
1920 ..	190,171	1,142	471,859	663,172	95,194	147,396	423,233	665,823
1921 ..	250,356	710	531,589	782,655	132,011	156,123	461,547	749,681

(a) Including Loans raised during year and interest on Sinking Fund investments.

(iv) *Assets and Liabilities of Municipalities.* The following table gives particulars respecting the assets and liabilities of municipalities at the end of each financial year 1901 and 1916 to 1921 :—

WESTERN AUSTRALIA.—ASSETS AND LIABILITIES OF MUNICIPALITIES, 1901 AND 1916 TO 1921.

Year ended the 31st October—	Assets.					Liabilities.		
	Balance in Hand. (a)	Value of Property owned by Municipalities.	Accrued Sinking Funds for Redemption of Loans.	Other Assets.	Total.	Outstanding Debts and Bonds.	Other Liabilities.	Total.
	£	£	£	£	£	£	£	£
1901 ..	37,259	214,984	42,311	13,432	307,986	321,000	19,762	340,762
1916 ..	17,233	1,438,246	286,485	86,158	1,828,122	1,813,426	68,897	1,882,323
1917 ..	27,259	1,445,877	298,421	85,039	1,856,596	1,789,168	67,754	1,856,922
1918 ..	35,016	1,440,479	335,459	96,318	1,907,272	1,753,316	71,740	1,825,056
1919 ..	41,808	1,426,270	372,163	127,532	1,967,776	1,738,568	85,361	1,823,929
1920 ..	36,087	1,456,109	345,692	133,610	2,011,498	1,745,508	90,688	1,836,596
1921 ..	64,687	1,514,671	401,879	100,264	2,089,501	1,782,471	107,836	1,890,307

(a) Including bank balance, cash in hand, and fixed deposit.

(v) *Road Districts.* Returns regarding Road Districts are as under :—

WESTERN AUSTRALIA.—REVENUE AND EXPENDITURE, ASSETS AND LIABILITIES, OF ROAD DISTRICTS, 1901 AND 1916 TO 1921.

Year ended 30th June.	No. of Districts.	Area.	Revenue.				Expenditure.				Assets.	Liabilities.
			Rates.	From Government.	Other. (b)	Total.	Admin-istration.	Works.	Other.	Total.		
			£	£	£	£	£	£	£	£		
1901 (a)	93	975,808	8,293	36,011	6,580	50,884	6,833	45,303	3,935	56,071	18,339	2,441
1916 ..	113	975,827	104,345	24,397	38,820	167,562	24,903	114,343	27,094	166,340	226,335	114,841
1917 ..	117	975,828	113,686	30,226	55,383	199,295	26,335	126,316	36,526	189,177	256,245	137,994
1918 ..	116	975,830	116,245	32,594	46,187	195,026	27,969	139,514	38,682	206,165	265,033	149,127
1919 ..	118	975,825	118,144	27,692	53,748	199,584	29,591	132,276	42,243	204,112	272,441	173,002
1920 ..	118	975,825	135,644	53,234	63,902	257,780	31,722	152,172	59,471	243,365	280,621	191,823
1921 ..	119	975,825	149,104	39,172	85,659	274,735	36,801	179,317	69,038	285,216	307,521	219,660

(a) Year ended 31st December. (b) Including Loans raised during the year and interest on Sinking Fund investments.

(vi) *Boards of Health.* On the 31st October, 1920, there were twenty-six Local Boards of Health within municipalities, and on the 30th June, 1920, sixty-one under control of Road Boards, and twenty-eight extra-municipal Boards. In and after 1911, the financial year of Municipal Local Health Boards ended 31st October, and that of extra-municipal Boards, 30th June.

The following table shews particulars of the receipts and expenditure of the various Boards—both municipal and extra-municipal—during the years 1901 and 1916 to 1921 :—

WESTERN AUSTRALIA.—RECEIPTS AND EXPENDITURE OF LOCAL HEALTH BOARDS, 1901 AND 1916 TO 1921.

Year ended the 31st October—	Revenue.			Expenditure.		
	From Public Health Rate.	From other Sources.	Total.	On Sanitary Services.	Other Expenses.	Total.
	£	£	£	£	£	£
1901 ..	15,251	17,456	32,707	18,739	15,555	34,344
1916 (a) ..	(g) 43,942	(h) 59,441	103,383	68,749	29,971	98,720
1917 (b) ..	(g) 42,967	(h) 56,488	99,455	67,830	31,056	98,886
1918 (c) ..	(g) 41,358	(h) 56,383	97,741	66,652	32,588	99,240
1919 (d) ..	(g) 40,781	(h) 59,174	99,955	74,390	36,970	111,360
1920 (e) ..	(g) 49,012	(h) 74,633	123,645	82,856	39,719	122,575
1921 (f) ..	(g) 57,194	(h) 75,827	133,021	89,709	41,691	131,400

(a) Exclusive of 8 inactive boards. (b) Exclusive of 10 inactive boards. (c) Exclusive of 8 inactive boards. (d) Exclusive of 9 inactive boards. (e) Exclusive of 11 inactive boards. (f) Exclusive of 14 inactive boards. (g) Including sanitary rates. (h) Including sanitary fees and charges.

6. *Tasmania.*—(i) *Systems of Local Government.* The whole State, with the exception of the cities of Hobart and Launceston, which were incorporated under separate Acts, was divided by the Local Government Act of 1906 into municipal districts. Amendments to that Act were made in 1908, 1911, 1918, 1919, and 1920.

(ii) *Annual Value, Revenue, and Expenditure of Municipalities.* The following table shews the annual value, total receipts, and expenditure of municipalities for the years 1916 to 1920 inclusive :—

TASMANIA.—ANNUAL VALUE, REVENUE AND EXPENDITURE OF MUNICIPALITIES, 1916 TO 1920.

Year.	Number of Municipalities.	Annual Value of Ratable Property.	Revenue.				Expen- diture. (b)
			From Rates.	From Govt.	From other Sources. (a)	Total.	
		£	£	£	£	£	£
1916 ..	50	1,717,878	188,939	12,753	216,880	418,572	510,977
1917 ..	50	1,769,443	202,119	18,527	249,756	470,402	487,615
1918 ..	50	1,787,234	216,232	22,266	318,511	557,009	558,939
1919 ..	50	1,872,336	240,661	33,967	304,258	578,886	585,491
1920 ..	49 (c)	1,934,790	255,432	29,072	472,556	757,060	770,060

(a) Including sums derived from loans. (b) Including repayments of loans.
(c) New Town incorporated in Hobart.

According to the latest estimate made by the Commissioner of Taxes the capital value of ratable property in 1919 was £37,121,328.

(iii) *Total Revenue and Expenditure of Local Bodies.* In addition to the local authorities already mentioned, seven Marine Boards and three Harbour Trusts have been established at ports in Tasmania for the purposes of constructing and maintaining wharves and jetties and of controlling all matters relating to shipping in the respective ports. Of the Water Trusts, seven maintain independent existence, and the remaining twenty-five are incorporated in the Municipalities. There are twenty-four independent Cemetery Trusts. The subjoined statement shews the total revenue and

expenditure for all local bodies, exclusive of all amounts contributed by the general Government, during each year from 1916 to 1920 inclusive :—

TASMANIA.—REVENUE AND EXPENDITURE OF ALL LOCAL BODIES, EXCLUSIVE OF AMOUNTS CONTRIBUTED BY THE GENERAL GOVERNMENT, 1916 TO 1920.

Particulars.	1916.	1917.	1918.	1919.	1920.
(a) REVENUE.					
	£	£	£	£	£
Marine Boards	67,579	100,364	79,633	89,037	146,179
Municipalities	405,819	451,875	534,743	544,919	727,988
Cemetery Trusts	1,275	1,143	1,507	1,718	1,777
Water Trusts	2,365	2,865	2,669	3,458	(c)1,647
Total	477,038	556,247	618,552	639,132	877,591

(b) EXPENDITURE.					
	£	£	£	£	£
Marine Boards	87,960	99,308	89,722	99,300	179,146
Municipalities	498,224	469,088	536,673	551,524	740,988
Cemetery Trusts	1,425	1,379	1,593	1,610	1,681
Water Trusts	1,813	1,753	2,246	2,894	(c)1,574
Total	589,422	571,528	630,234	655,328	923,389

(a) Exclusive of amounts contributed by the general Government. (b) Exclusive of expenditure from Government contributions. (c) Not including Mt. Cameron Water-race controlled by Government (Receipts, £902; Expenditure, £829).

7. Northern Territory.—(i) *Municipality of Darwin.* The following particulars relate to the year 1921–22 :— Area 2,024 acres, population 1,000, number of occupied dwellings 228, and of other buildings 130. Revenue from general rates £2,826, from Government grants £1,560, total £4,386; expenditure £5,917.

(ii) *Bagot Road District.*—During the year 1921–22 the receipts amounted to £235 and the expenditure to £4, leaving (with a balance of £275 brought forward from the previous year) a balance in hand of £506.

§ 3. Water Supply, Sewerage and Drainage.

1. New South Wales.—(i) *Metropolitan Waterworks.* The following tables give particulars as to (a) the revenue, expenditure, and capital cost of the metropolitan waterworks, and (b) the number of gallons of water, number of houses and population supplied in 1901 and from 1917 to 1921 :—

SYDNEY WATERWORKS.—REVENUE, EXPENDITURE, AND CAPITAL COST, 1901 AND 1917 TO 1921.

Year ended 30th June.	Revenue. (a)	Working Expenses.	Capital Cost, exclusive of Items on which Interest is not charged.	Percentage of Working Expenses to Revenue.	Percentage of Revenue to Capital Cost.	Interest Payable on Capital Cost.	Net Profit after Paying Working Expenses and Interest.
	£	£	£	%	%	£	£
1901 ..	203,348	48,137	3,873,913	23.67	5.25	131,892	23,319
1917 ..	468,537	177,977	7,769,200	37.98	6.03	306,198	—15,638
1918 ..	523,979	195,448	8,472,700	37.30	6.18	343,716	—15,185
1919 ..	627,288	219,322	8,900,391	34.96	7.04	377,885	30,081
1920 ..	664,975	291,618	9,584,723	43.85	6.93	433,170	—59,813
1921 ..	855,751	347,298	10,323,252	40.58	8.28	473,889	34,564

(a) Rate increased from 6½d. to 7½d. in the £1 of the assessed annual value from 1st July, 1918, and from 7½d. to 9d. in the £1 from 1st July, 1920.

NOTE.—The minus sign (—) signifies loss.

SYDNEY WATERWORKS.—NUMBER OF GALLONS, HOUSES, AND POPULATION SUPPLIED, 1901 AND 1917 TO 1921.

Year ended 30th June.	Number of Houses Supplied.	Estimated Population Supplied.	Average Daily Supply.	Total Supply for the Year.	Average Daily Supply.		Mains Laid.
					Per House.	Per Head of Estimated Population.	
	No.	No.	1,000 Gallons.	1,000 Gallons.	Gallons.	Gallons.	Miles.
1901 ..	98,298	491,000	21,583	7,877,677	219	43.95	40
1917 ..	193,643	968,215	39,637	14,467,000	204	40.94	104
1918 ..	196,685	993,425	41,358	15,096,030	206	41.63	98
1919 ..	204,308	1,021,540	45,557	16,628,342	223	44.59	106
1920 ..	212,046	1,060,230	48,021	17,527,753	226	45.29	142
1921 ..	221,886	1,109,430	48,496	17,701,000	218	43.71	128

(ii) *Metropolitan Sewerage Systems.* The following tables shew (a) the revenue, expenditure, and capital cost of the metropolitan sewerage systems, and (b) the number of houses drained, the population served, and the length of sewers in 1901 and from 1917 to 1921 :—

SYDNEY SEWERAGE SYSTEMS.—REVENUE, EXPENDITURE, AND CAPITAL COST, 1901 AND 1917 TO 1921.

Year ended the 30th June.	Revenue. (a)	Working Expenses.	Capital Cost, exclusive of Items on which Interest is not charged.	Percentage of Expenditure to Revenue.	Percentage of Revenue on Capital Cost.	Interest Payable on Capital Cost.	Profit or Loss after Payment of Working Expenses and Interest.
	£	£	£	%	%	£	£
1901 ..	125,290	44,257	3,110,633	35.32	4.02	107,047	-26,014
1917 ..	387,333	138,416	6,722,313	35.73	5.76	269,723	-20,806
1918 ..	429,669	147,444	6,870,927	34.31	6.25	283,661	-1,436
1919 ..	497,406	151,951	6,963,573	30.54	7.14	291,347	54,108
1920 ..	512,621	202,360	7,124,813	39.47	7.26	328,239	-17,978
1921 ..	615,615	229,441	7,329,632	37.27	8.39	341,674	44,500

(a) Rate increased from 11d. to 1s. in the £1 of the assessed annual value from 1st July, 1920.

NOTE.—The minus sign (—) represents a loss.

SYDNEY SEWERAGE SYSTEMS.—NUMBER OF HOUSES DRAINED, POPULATION SERVED, AND LENGTH OF SEWERS, 1901 AND 1917 TO 1921.

Year ended the 30th June.	Number of Houses Drained.	Estimated Population Served.	Total Length of Sewers.	Total Length of Storm-water Drains.	Ventilating Shafts Erected.	Sewers Ventilated.
	No.	No.	Miles.	Miles.	Feet.	Miles.
1901 ..	75,416	370,000	515.62	25.91	194,667	450
1917 ..	136,409	682,045	1,085.45	59.55	475,474	1,030
1918 ..	139,777	698,885	1,113.34	60.07	479,464	1,039
1919 ..	141,798	708,990	1,131.72	60.11	484,798	1,052
1920 ..	145,304	726,520	1,161.94	63.73	503,362	1,096
1921 ..	148,923	744,615	1,196.96	53.73	514,536	1,122

(iii) *The Hunter District Water Supply and Sewerage. (a) Water Supply.* The number of service reservoirs has been increased to seventeen, with a capacity of 14,849,260 gallons. Of these twelve are supplied by gravitation from the summit reservoir, four by repumping, and one by direct pumping. The total length of water mains has risen to 464 miles.

The capital debt of the Board to the Government at 30th June, 1920, in respect of water supply was £1,379,427. The expenditure on works under construction at 30th June, 1921, amounts to £610,233. This amount will not be capitalized until completion of works.

In the subjoined table particulars are given as to the revenue and expenditure, and also as to the number of houses and population supplied in 1901 and 1917 to 1921 :—

PARTICULARS OF HUNTER DISTRICT WATER SUPPLY, 1901 AND 1917 TO 1921.

Year ended 30th June.	Revenue.	Working Expenses (including Interest).	Houses Supplied.	Estimated Population Served.	Supply.	
					Daily Average.	Total.
	£	£	No.	No.	1,000 gallons.	1,000 gallons.
1901	27,405	30,948	9,086	45,400	1,005	366,889
1917	78,040	65,338	22,604	113,377	3,435	1,253,897
1918	80,607	73,949	23,257	116,285	3,442	1,256,628
1919	91,204	76,297	24,079	120,395	4,065	1,483,806
1920	97,469	88,488 ^a	24,864	124,320	4,319	1,580,905
1921	116,320	106,194	25,874	129,370	4,688	1,711,186

(a) Including £35,556, interest on capital debt, and £10,743, instalment to sinking fund for reconstruction of renewable works.

The average daily consumption of water for all purposes per inhabitant was 36.23 gallons during the year 1921 as against 34.74 gallons during the previous year.

(b) *Sewerage Works.* Considerable progress has been made by the Department of Public Works with the construction of the sewerage works for Newcastle and suburbs. Up to the 30th June, 1921, about 147 miles of sewers, connecting with 12,218 separate properties, were under the control of the Board. For the financial year 1920–21 the revenue was £32,164 and the expenditure £46,584, the latter amount including a £5,249 instalment to the sinking fund for the reconstruction of renewable works. The capital debt of the Board to the Government at 30th June, 1921, in respect of sewerage was £555,513.

(iv) *Water Supply and Sewerage in Country Towns.* The works of country water supply and sewerage are now carried on under the Local Government Act 1919 as amended in 1920. The operation of Part XIV. of the Principal Act commenced on 1st September, 1920, and until that date the Country Towns Water Supply and Sewerage Acts remained in operation.

(a) *Waterworks.* Up to the 30th June, 1921, 59 country towns had availed themselves of the privileges of the Acts as regards waterworks, all of which at that date had been completed and handed over by the Government. The capital debt of these works as gazetted was £1,484,486, and the total sums payable annually for various periods ranging up to 100 years was £55,750, including interest ranging from 3½ per cent. to 4 per cent. per annum, the first repayments having become due at various dates, starting from the end of the year 1893. In the calculation of these repayments the interest during construction on the sums actually expended has been added, and any payments by the councils, as well as sums remitted under the authority of the Acts, have

been deducted. It has recently been found necessary to increase the rate of interest from 4 to 5 per cent., and then 5½ per cent. per annum. Under the present Local Government Act, the Government may from time to time fix the rate of interest which shall be payable upon the amount of capital debt remaining unpaid on these works, and may thereupon alter the instalments accordingly. Other schemes of water supply and extensions of existing works are in course of construction. A few other municipalities have constructed works out of their own resources. The water supply of Broken Hill with a loan expenditure of £481,795 was constructed under a special Act, and is administered by the Minister for Public Works. The Junee Water Supply has been placed under special administration and the Grafton Water Supply serving both Grafton and South Grafton is vested in a board composed of three members of each council.

(b) *Sewerage Works.* Only 21 municipal councils have taken advantage of the Act providing for the construction of sewerage and storm-water drainage works in country towns. On the 30th June, 1921, the capital debt of these systems was £571,905, the amount payable annually to the Government being £21,961. Other sewerage systems, as well as extensions to existing systems, are in course of construction.

2. *Victoria.*—(i) *The Melbourne and Metropolitan Board of Works.* No alteration has been made in the constitution of the Board. Under the provisions of section 71 of the Melbourne and Metropolitan Board of Works Act 1915, however, and by consent of the Governor in Council given on 14th December, 1920, all land within thirteen miles of the General Post Office was included within the Metropolis for water supply and sewerage purposes. This land area consisted of 434 square miles, and on 31st December, 1921, comprised 18 cities, 3 towns, and 1 borough and part of another, also 1 shire and parts of 13 others, a total of 37 municipalities or portions thereof. Control for water supply purposes is also exercised by consent of the Governor in Council over other parts of certain municipalities outside the thirteen-mile radius, the Board supplying water to the Metropolitan Farm at Werribee, the outfall sewer area, and elsewhere. Various other shires also arrange for bulk supplies of water. The total estimated population served on the 31st December, 1921, was 802,831. The liability on Government loans on the 30th June, 1921, was £938,182, and for loans raised by the Board was £12,075,979. The Board is still empowered to borrow £125,773 before reaching the limit of its borrowing powers.

(a) *Total Cost of Water Supply and Sewerage.* The subjoined table shews the total cost of construction and maintenance of water supply and sewerage from 1853 to 1921:—

MELBOURNE AND METROPOLITAN BOARD OF WORKS.—TOTAL COST OF CONSTRUCTION AND MAINTENANCE OF WATER SUPPLY AND SEWERAGE, 1853 TO 1921.

Period ending 30th June.	Water Supply.			Sewerage.			Grand Total.
	Capital Cost.	Working Expenses.	Interest.	Capital Cost.	Working Expenses.	Interest.	
	£	£	£ /	£	£	£	£
1853 to 1891	3,378,246	420,833	1,021,676	..	..	..	4,820,755
1891 to 1901	336,957	367,506	1,021,181	3,307,764	114,288	919,017	6,066,693
1901 to 1911	299,303	384,871	1,026,362	2,981,666	461,706	2,333,348	7,487,256
1911 to 1914	600,222	159,903	354,665	614,401	199,214	902,310	2,830,715
1914 to 1915	129,007	60,547	130,268	245,548	72,030	316,788	954,188
1915 to 1916	91,893	54,580	134,915	166,201	70,783	321,640	840,012
1916 to 1917	31,979	54,566	137,544	108,583	72,658	329,176	734,506
1917 to 1918	21,214	60,714	139,458	155,911	85,327	345,521	808,145
1918 to 1919	32,245	59,394	153,573	138,884	87,954	372,235	844,285
1919 to 1920	47,251	62,941	156,588	158,288	95,287	373,925	894,280
1920 to 1921	112,025	78,755	173,550	203,324	119,304	378,023	1,064,981
Total ..	5,080,342	1,764,610	4,449,780	8,080,570	1,378,531	6,591,983	27,345,816

(b) *Revenue and Expenditure of Melbourne and Metropolitan Board of Works.*
The following table shews the actual receipts and expenditure, and also the loan receipts and expenditure of the Board during 1901-2 and 1916-17 to 1920-21.

MELBOURNE AND METROPOLITAN BOARD OF WORKS.—REVENUE AND EXPENDITURE DURING EACH YEAR, 1901-2 AND 1916-17 TO 1920-21.

Particulars.	1901-2.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£	£
Water supply	171,956	333,747	335,674	353,466	394,007	419,474
Sewerage, etc.	124,696	293,250	308,904	364,025	396,718	404,234
Live stock—Metropolitan farm ..	19,929	86,225	58,124	57,201	53,051	43,975
Interest { Water supply .. ..	..	1,593	1,053	826	1,707	1,021
{ Sewerage	17,448	11,131	8,514	7,525	9,509	8,737
Sinking Fund proceeds .. ..	..	..	30,275	..	..	..
Total	334,029	725,946	742,544	783,043	854,992	877,441

ORDINARY RECEIPTS.

	£	£	£	£	£	£
Water supply	171,956	333,747	335,674	353,466	394,007	419,474
Sewerage, etc.	124,696	293,250	308,904	364,025	396,718	404,234
Live stock—Metropolitan farm ..	19,929	86,225	58,124	57,201	53,051	43,975
Interest { Water supply .. ..	..	1,593	1,053	826	1,707	1,021
{ Sewerage	17,448	11,131	8,514	7,525	9,509	8,737
Sinking Fund proceeds .. ..	..	..	30,275	..	..	..
Total	334,029	725,946	742,544	783,043	854,992	877,441

ORDINARY EXPENDITURE.

General management	33,621	49,409	50,094	49,700	51,259	59,420
Live stock, etc.—Metropolitan farm ..	16,702	67,206	85,195	63,595	60,851	68,742
Maintenance { Water supply	22,205	33,452	39,024	39,580	60,342	67,131
{ Sewerage	24,396	45,208	61,332	56,221	62,149	78,037
Interest { Water supply	102,670	139,138	140,906	145,458	147,750	156,645
{ Sewerage	192,952	340,589	354,211	361,898	362,886	369,204
War expenditure: Safeguarding works, etc. .. ..	..	7,431	6,458	3,585	1,195	..
Patriotic, Relief Funds, etc. .. ..	..	100	..	713	100	104
Sinking fund investment .. ..	..	..	..	30,000	5,036	4,813
Total	392,546	687,533	737,220	750,700	751,588	804,096

LOAN RECEIPTS.

Water supply	1,636	8,062	3,482	2,720	4,712	7,016
Sewerage	88,425	44,926	42,673	47,339	53,973	47,769
Proceeds of loans	396,238	567,878	77,025	176,125	543,853	543,616
Miscellaneous .. ..	..	2,648	4,431	4,857	4,351	3,196
Total	486,299	623,514	127,611	231,041	606,889	601,597

LOAN EXPENDITURE.

Water supply construction	17,058	39,764	23,569	35,237	55,937	119,744
Sewerage construction	410,760	154,743	182,431	191,012	205,516	257,240
Expenses in floating and redemption of loans	5,200	379,362	26,429	27,151	249,617	378,820
Miscellaneous	(a) 4,293	7,156	1,273	9,263	27,622	46,478
Total	428,725	581,025	233,702	262,663	538,692	802,282

(a) Credit by excess of stock distribution (£7,020) over purchases (£2,727).

(ii) *Melbourne Water Supply. (a) Development of System.* The following statement shews the development which has taken place in the water supply system of Melbourne during the 64 years since its inception :—

MELBOURNE WATER SUPPLY SYSTEM, 1857 TO 1921.

Year.	Estimated Population Supplied. (a)	Capital cost. (b)	Charge per 1,000 Gallons.	Rate in £.	Reticulation, Mains, etc., Mileage. (b)	Daily average of annual consumption of water.(a)
		£				
1857 (Dec. 31)	95,442	748,974	10/- and 6/-	1/-	104	3,250,000
1921 (June 30)	802,831	5,080,342	1/-	6d.	1,783	47,135,608

(a) 31st December. (b) 30th June.

On the O'Shanassy scheme up to 30th June, 1921, the sum of £479,751 has been expended.

(b) *Quantity of Water, Number of Houses, and Population Supplied.* The following table gives various particulars for the years 1901 and 1916 to 1921, shewing the increase in the supply of water in Melbourne and suburbs :—

MELBOURNE WATERWORKS.—NUMBER OF HOUSES, POPULATION, AND WATER SUPPLIED, 1901, AND 1917 TO 1921.

Year. Ended 30th June.	Number of Houses Served.	Estimated Population Supplied. (a)	Average Daily Supply.	Total Supply for the Year ended 30th June.	Average Daily Supply.		Rate levied.	Assessments of Houses Served by Metropolitan Water Supply.
					Per House.	Per Head of Estimated Population.		
	No.	No.	,000 Gallons.	,000 Gallons.	Gallons.	Gallons.		£
1901 ..	104,548	492,253	28,732	10,487,007	274.8	58.4	} 6d. in the £	3,479,721
1917 ..	158,086	693,946	37,653	13,743,439	238.2	54.3		7,113,740
1918 ..	161,743	708,421	39,133	14,283,490	241.9	55.2		7,270,091
1919 ..	165,046	723,838	41,222	15,045,938	249.8	56.9		7,507,306
1920 ..	170,550	743,345	44,360	16,235,587	260.1	59.7		7,945,874
1921 ..	177,998	772,034	46,772	17,071,857	262.8	60.6		8,567,419

(a) 31st December of previous year.

(c) *Total Cost of Construction, Revenue, Expenditure and Net Profits, 1853 to 1921.* The following table shews the total cost of construction, the revenue, expenditure and net profits for various periods up to 30th June, 1921 :—

MELBOURNE WATERWORKS.—CONSTRUCTION COST, REVENUE, EXPENDITURE, AND NET PROFITS, 1853 TO 1921.

Period.	Capital Cost. (a)	Revenue. (b)	Working Expenses.(c)	Percentage of Working Expenses to Revenue.	Interest. (d)	Surplus.
	£	£	£	%	£	£
Total to 1890-1 ..	3,378,246	3,150,055	420,833	..	1,021,676	1,707,546
1891-2 to 1900-1 ..	336,957	1,686,025	367,506	21.80	1,021,181	297,338
1901-2 to 1910-11(e)	299,303	2,054,355	384,871	18.73	1,026,362	643,122
1911-12 to 1913-14	600,222	897,577	159,903	17.81	354,665	383,009
1914-15 ..	129,007	350,549	60,547	17.27	130,268	159,734
1915-16 ..	91,893	(f) 334,181	(g) 54,580	16.33	134,915	144,686
1916-17 ..	31,979	319,614	(h) 54,566	17.07	137,544	127,504
1917-18 ..	21,214	331,955	(i) 60,714	18.29	139,458	131,783
1918-19 ..	32,245	372,180	(j) 59,394	15.96	153,573	159,213
1919-20 ..	47,251	398,173	(k) 62,941	15.80	156,588	178,644
1920-21 ..	112,025	477,093	78,755	19.34	173,550	154,788
Total ..	5,080,342	10,301,757	1,764,610	..	4,449,780	4,087,367

(a) Works commenced in 1853. (b) Revenue commenced in 1854. (c) Returns for expenditure commenced in 1859. (d) First interest paid in 1856. (e) 1906-07, water rates increased from 6d. to 7d. in the £. (f) Rate reduced from 7d. to 6d. in the £. (g) Not including renewals (£7,349) and special War expenditure (£7,728). (h) Not including renewals (£4,545) and special War expenditure (£4,689). (i) Not including renewals (£3,893) and special War expenditure (£3,632). (j) Not including renewals (£4,183) and special War expenditure (£1,888). (k) Not including renewals (£6,343) and War expenditure (£552).

(iii) *Melbourne Sewerage.* The movable pan system has been displaced by the water carriage system throughout the greater portion of the metropolis, and in other parts the work of reticulation is now proceeding.

(a) *Metropolitan Sewage Farm.* The farm originally contained 8,847 acres, situated on the Western side of the Werribee River. Since 1911, 4,031 acres have been purchased, making the total area of the farm 12,878 acres at 30th June, 1921, its total cost to that date being £599,384. About 37,846,292 gallons of sewage had to be disposed of every 24 hours during the year 1920-21 in irrigating the fields. During the financial year 1920-21, 4,407 sheep were sold, the loss for the year being £1,305. Cattle to the number of 2,295 were sold, the profit for the year on cattle being £17,569.

(b) *Number of Houses Connected, Capital Cost, Revenue and Expenditure.* The following table gives particulars as to the number of houses connected to the sewerage system, the total capital cost, and the receipts and disbursements during 1901-2 and 1916-17 to 1920-21:—

MELBOURNE SEWERAGE WORKS.—TENEMENTS CONNECTED, CAPITAL COST, REVENUE, MAINTENANCE, AND WORKING EXPENSES, 1901-2 AND 1916-17 TO 1920-21.

Year.	Number of Houses Connected.	Capital Cost.	Revenue.			Maintenance, Repairs and Renewals.
			From Rates.	From other Sources.	Total.	
	No.	£	£	£	£	£
1901-2 ..	47,172	3,610,225	126,725	10,968	137,693	24,336
1916-17 ..	148,395	7,424,163	289,512 (a)	25,586	315,098	53,099 (b)
1917-18 ..	151,622	7,580,074	298,053 (c)	29,346	327,399	65,534
1918-19 ..	155,238	7,718,958	341,053 (d)	38,847	379,900	69,777 (e)
1919-20 ..	158,735	7,877,246	362,136	46,921	409,057	75,094 (f)
1920-21 ..	161,955	8,080,570	388,252	22,925	411,177	94,302 (g)

(a) Rate reduced from 11d. to 10d. in the £. (b) Not including renewals (£3,790) and special War expenditure (£2,635). (c) Not including renewals (£3,402) and special War expenditure (£2,609). (d) Rate increased from 10d. to 11d. (e) Not including Renewals (£3,383) and special War expenditure (£1,564). (f) Not including renewals (£3,775) and special War expenditure (£553). (g) Not including renewals (£5,964.)

(iv) *Water Supply in Country Towns and Districts.* Most of the country waterworks are controlled by the State Rivers and Water Supply Commission. Further information with regard to this Commission and to the works and districts under its control are given in the section of this book dealing with Water Conservation and Irrigation. There are, however, a number of other waterworks which are controlled by Waterworks Trusts or by municipal corporations.

The following table gives particulars as to the waterworks under the control of Trusts and municipal corporations for the years 1901 and 1917 to 1921:—

VICTORIA.—COUNTRY WATERWORKS UNDER TRUSTS AND MUNICIPAL CORPORATIONS, 1901 AND 1917 TO 1921.

Year.	Waterworks Trusts.				Municipal Corporations.			
	Number of Trusts.	Capital Cost.	Capital Indebtedness.	Current Interest Outstanding.	Number of Corporations.	Capital Cost.	Capital Indebtedness.	Current Interest Outstanding.
	No.	£	£	£	No.	£	£	£
1901 ..	76	823,418	748,089	(a)	24	(a)	470,041	(a)
1917 ..	98	1,224,211	937,810	13,358	28	718,089	464,114	1,871
1918 ..	98	1,196,335	904,229	12,632	29	773,998	514,115	10,379
1919 ..	98	1,210,097	907,087	13,898	29	779,834	515,240	9,658
1920 ..	98	1,189,259	892,222	14,970	29	782,115	515,364	10,614
1921 ..	98	1,215,526	905,842	10,171	29	784,465	512,185	2,300

(a) Not available.

(v) *Geelong Waterworks and Sewerage Trust.* The cost of the works (water and sewerage) under the control of the Geelong Waterworks and Sewerage Trust to 30th June, 1921, was £827,776, the estimated population served 37,000, and the number of assessments 12,000. The revenue for the year amounted to £56,717.

3. *Queensland.*—(i) *The Metropolitan Water Supply and Sewerage Board.* (a) *General.* Since the publication of Year Book No. 12, the filtration works on Holt's Hill have been put into operation and the whole of the water supply in the Brisbane area is now filtered. A construction order has been obtained for four additional filter beds, upon which work will commence in 1922.

The second reservoir has been completed on Bartley's Hill, bringing the capacity of the service reservoirs to six and a half million gallons. A new reservoir is being constructed on Tarragindi Hill, a suburb of Brisbane, to contain approximately 14,000,000 gallons. It was anticipated that this reservoir would be completed during the year 1921, but owing to unavoidable causes work was suspended during part of 1920 and 1921. Work was recommenced in October, 1921, and it is expected the reservoir will be finished by the end of 1922.

(b) *Brisbane Waterworks and Sewerage Works under Construction: Cost, Revenue, Expenditure and Interest.* The subjoined table gives particulars as to the total capital cost, the revenue and expenditure, the amount of interest and loan redemption during 1901 and each of the years 1917 to 1921:—

**BRISBANE WATERWORKS AND SEWERAGE WORKS UNDER CONSTRUCTION.—
COST, REVENUE, EXPENDITURE, INTEREST, AND REDEMPTION OF LOANS,
1901 AND 1917 TO 1921.**

Year.	Capital Cost (including Sewerage Works from 1914).	Revenue from Rates and Sales of Water.	Working Expenses.	New Work Construction (including Sewerage Works from 1914).	Interest and Redemption of Loans.
	£	£	£	£	£
1901	694,973	60,120	17,462	7,535	42,426
1917	2,422,857	121,514	59,199	286,158	60,388
1918	2,683,846	134,121	65,653	259,132	64,039
1919	3,115,002	156,743	79,667	431,156	72,354
1920	3,661,580	216,620	94,070	546,578	88,033
1921	4,057,994	269,741	97,379	396,414	105,259

(c) *Brisbane Waterworks: Length of Mains, Tenements and Population Served, and Water Consumption.* The following table shews the length of mains, the number of tenements connected, the population supplied, the total quantity of water supplied, the average daily supply, and the average daily supply per head of population during 1901 and each year from 1917 to 1921:—

BRISBANE WATERWORKS.—PARTICULARS, 1901 AND 1917 TO 1921.

Year.	Length of Reticulation Mains.	Number of Tenements Connected.	Estimated Population Supplied.	Quantity Supplied.	Average Daily Supply.	Average Daily Supply per Head of Estimated Population.
	Miles.	No.	No.	,000 Gallons.	Gallons.	Gallons.
1901	198	15,652	78,260	1,536,260	4,208,931	53.78
1917	429½	33,082	165,410	2,827,836	7,747,498	46.83
1918	451½	34,450	172,250	3,159,105	8,655,082	50.24
1919	477½	36,998	178,620	3,628,478	9,941,036	55.65
1920	505	40,266	193,160	3,293,061	8,997,436	46.58
1921	546½	42,408	206,685	3,360,747	9,207,527	44.54

The total length of the trunk mains is 115½ miles.

(d) *Sewerage Scheme.* The sewerage works now under construction comprise the main sewer, which is nearly completed from treatment works to North Quay; the effluent sewer and the treatment works, both of which are nearing completion; and the reticulation which was recommenced during the year. 79,102 lineal feet of main sewers, including a tunnel under the Brisbane river, and 15,094 lineal feet of reticulation sewers, including house connection branches, have been constructed, while 15,431 lineal feet of main sewers are under construction. 20,268 houses have now been surveyed.

(ii) *Country Towns Water Supply.* In addition to the City of Brisbane there were at the end of the year 1920 thirty towns in Queensland provided with water supply systems, constructed by municipalities chiefly from Government loans. The subjoined statement gives particulars of all the water supply systems exclusive of Brisbane, for the year 1920:—

QUEENSLAND.—PARTICULARS OF COUNTRY WATER SUPPLY SYSTEMS, 1920.

Cost of Construction to 31st December, 1920—£1,027,663.

<i>Receipts.</i>		£	<i>Expenditure.</i>		£
Rates and Sales of water	..	120,347	Office and salaries	..	19,490
Other (a)	..	17,110	Construction	..	18,361
			Maintenance	..	44,345
			Interest and redemption	..	32,026
			Other expenses	..	32,932
Total receipts	..	137,457	Total	..	147,154
Assets	..	805,575	Liabilities	..	595,954

(a) Including £12,150 from Government loans.

4. *South Australia.*—(i) *Adelaide Water System.* The water supply system of Adelaide is under the control of the Public Works Department. The total capital cost up to the 30th June, 1921, was £2,768,769, the total revenue being £3,721,193, and the area served approximately 106,465 acres.

The following table gives various particulars relating to the water supply of Adelaide for the years 1917 to 1921, inclusive:—

ADELAIDE WATER SUPPLY.—LENGTH OF MAINS, REVENUE, EXPENDITURE, AND CONSUMPTION OF WATER, 1917 TO 1921.

Year ended 30th June.	Length of Mains.	Gross Revenue.	Working Expenses.	Net Revenue.	Percentage of Net Revenue on Capital Cost.	Total Consumption of Water. (a)
	Miles.	£	£	£	%	Million of Gallons.
1917 ..	882	118,951	32,974	85,977	4.26	4,113
1918 ..	901	118,985	34,298	84,687	4.15	4,266
1919 ..	914	126,110	36,142	89,968	4.33	5,292
1920 ..	947	137,488	43,410	94,078	4.33	5,626
1921 ..	990	177,722	52,378	125,344	4.53	5,179

(a) In the Adelaide Water District there are no governing meters. The quantities shown above are as recorded by gaugings taken at the reservoirs, and include evaporation and absorption.

(ii) *Adelaide Sewerage System.* In connexion with the sewerage system of Adelaide, which is also under the control of the Public Works Department, about 368 miles of sewers had been laid in the city and suburbs up to the 30th June, 1921.

The following table gives particulars relating to the Adelaide sewerage system for the years 1917 to 1921 inclusive :—

ADELAIDE SEWERAGE SYSTEM.—REVENUE AND EXPENDITURE, 1917 TO 1921.

Year ended the 30th June.	Revenue.			Expenditure.			Net Revenue.	
	Rates and Interest.	Sewage Farm. Sales of Produce, etc.	Total.	Mainten- ance.	Sewage Farm. Working Expenses.	Total.	Total.	Per- centage on Capital Cost.
	£	£	£	£	£	£	£	%
1917 ..	57,488	13,664	71,152	11,350	10,794	22,144	49,008	5.96
1918 ..	59,345	19,060	78,405	12,054	11,945	23,999	54,406	6.55
1919 ..	60,808	14,697	75,505	13,226	10,409	23,635	51,870	6.12
1920 ..	65,744	20,332	86,076	13,396	10,650	24,046	62,030	7.21
1921 ..	74,582	12,601	87,183	16,222	12,365	28,587	58,596	6.55

The seaside town of Glenelg is served by separate sewage disposal works, including a pumping station, septic tank, lucerne plots, and filter beds. The capital cost of this system at 30th June, 1921, was £47,734, and the year's working resulted in a loss of £469, due to heavy expenditure in repairing a large break in the main sewer. Up to the same date 16½ miles of sewers had been laid.

The city of Port Adelaide has a sewerage system under which the sewage is pumped to the Sewage Farm. The capital cost of this work at 30th June, 1921, was £324,786. The revenue received for the year ended 30th June, 1921, was £7,673, the working expenses £6,205, leaving a net revenue of £1,468, representing 0.45 per cent. on capital cost. The length of sewers laid at the above date was 43¾ miles.

(iii) *Water Supply in Country Towns.* In South Australia there is a number of country water works under the control of the Public Works Department, but there are no fresh additions to be made to the particulars supplied in Year Book No. 12 (page 965).

5. Western Australia.—(i) *Water Supply, Sewerage and Drainage Department.* This Department has the management of the undermentioned water supplies :—(a) The Goldfields Water Supply Undertaking. (b) Mines water supplies, boring and well-sinking in mining districts. (c) Water supplies, sewerage, well-sinking, boring, etc., in agricultural districts. (d) Town water supplies. (e) Irrigation. (f) Land drainage.

(ii) *The Metropolitan Water Supply, Sewerage and Drainage Department.*—(a) *Water Supply.* The Metropolitan Water Supply Works were first opened by a private company in October, 1890. Under the provisions of the Metropolitan Waterworks Act 1896, however, the works were purchased by the Government at a cost of £220,000, and were placed under the control of a Board, the functions of which were exercised from 1904 to 1909 by the Minister for Works. By the Metropolitan Water Supply, Sewerage and Drainage Act 1909, all water and sewerage works formerly vested in the Metropolitan Board were transferred to a Minister of Water Supply, Sewerage and Drainage. In August, 1912, the administration was transferred to the Water Supply Department. In April, 1918, it was separated from the Water Supply Department, and in 1921 it was created a separate Department. The supply of water is derived from five sources—(I.) the Victoria Reservoir, (II.) Bickley Brook pipehead dam, (III.) the Mundaring Reservoir, (IV.) Narrogin Brook, and (V.) artesian bores. For the year ending 30th June, 1921, the total consumption of water was 2,292 million gallons, exclusive of water supplied to railways from Walters Brook, Victoria Reservoir, and Narrogin Brook—an increase of 67 millions over the previous year. The number of services at that date was 34,740, and the length of mains was 633 miles.

(b) *Financial Operations of Metropolitan Water Supply Department.* The following table gives particulars of the financial operations of the Metropolitan Water Supply Department for each year ending the 30th June from 1917 to 1921 inclusive :—

METROPOLITAN WATER SUPPLY DEPARTMENT.(a)—PARTICULARS OF FINANCIAL OPERATIONS, 1917 TO 1921.

Year ended the 30th June.	Capital Cost of Works.	Depreciation.	Net Capital Cost.	Gross Revenue.	Cost of Maintenance and Management.	Ratio of Working Expenses to Revenue.
	£	£	£	£	£	%
1917 ..	1,019,388	220,750	798,638	95,451	36,075	37.79
1918 ..	1,057,444	240,650	816,794	91,380	34,670	37.94
1919 ..	1,080,876	261,520	819,356	89,215	35,881	40.22
1920 ..	1,119,910	270,498	849,412	96,881	44,829	46.27
1921 ..	1,223,951	305,696	918,255	113,439	54,468	48.02

(a) Perth, Fremantle, and Claremont combined.

(c) *Consumption of Water.* The following table shews the total annual supply, the average daily supply, and the average daily supply per house and per head of population during each financial year from 1917 to 1921 inclusive :—

METROPOLITAN WATER SUPPLY DEPARTMENT.—CONSUMPTION OF WATER, 1917 TO 1921.

Year.	Average Daily Supply in ,000 Gallons.			Water Supply for Years in ,000 Gallons.			Number of Houses Supplied.	Estimated Population Supplied.	Average Daily Supply.	
	From Reservoirs.	From Bores.	Total.	From Reservoirs.	From Bores.	Total.			Per House.	Per Head of Population.
1917	1,929	3,179	5,108	704,251	1,160,464	1,864,715	31,698	133,130	161	38.4
1918	2,659	2,444	5,103	970,671	892,054	1,862,725	32,396	136,000	157	37.5
1919	2,463	3,496	5,959	899,194	1,276,122	2,175,316	33,196	152,700	179	38.9
1920	2,467	3,659	6,126	903,072	1,339,364	2,242,436	34,570	165,900	174	36.3
1921	2,438	3,900	6,338	889,723	1,423,705	2,313,428	35,558	170,680	175	36.5

CENTRAL DISTRICT (INCLUDES PERTH, FREMANTLE, CLAREMONT, GUILDFORD, AND MIDLAND JUNCTION).

							No.	No.	Gals.	Gals.
1917	1,929	3,179	5,108	704,251	1,160,464	1,864,715	31,698	133,130	161	38.4
1918	2,659	2,444	5,103	970,671	892,054	1,862,725	32,396	136,000	157	37.5
1919	2,463	3,496	5,959	899,194	1,276,122	2,175,316	33,196	152,700	179	38.9
1920	2,467	3,659	6,126	903,072	1,339,364	2,242,436	34,570	165,900	174	36.3
1921	2,438	3,900	6,338	889,723	1,423,705	2,313,428	35,558	170,680	175	36.5

ARMADALE DISTRICT.

1917	29	..	29	(a) 10,663	..	(a) 10,663	98	410	(a) 296	(a) 70.7
1918	30	..	30	10,954	..	10,954	102	423	294	70.1
1919	32	..	32	(a) 11,495	(b) 176	11,671	105	483	304	66.2
1920	37	..	37	(a) 13,342	(b) 322	13,664	107	514	350	72.8
1921	37	..	37	13,614	Nil	13,614	108	518	345	71.8

(a) Includes water supplies to Railways. (b) From well.

(d) *Sewerage and Drainage in Perth and Fremantle.* The work of providing a sewerage system for Perth and Fremantle is still proceeding. Up to 30th June, 1921, 14,254 houses had been connected with the sewers. The revenue of the Sewerage and Drainage undertaking for 1920–21 was £61,961, as against £59,628 for the preceding year. The maintenance and management expenditure for the year amounted to £16,783, and interest and sinking fund charges to £49,218.

(iii) *Goldfields Water Supply Undertaking.* During the financial year 1920–21, the amount of water drawn for the Helena reservoir was 1,383,000,000 gallons, an increase on the previous year of 39,000,000 gallons. The gross revenue was £187,010, and the working expenses £106,925, leaving a surplus available towards interest and sinking fund of £80,085. The outlay for interest and sinking fund charges in respect of supplementary capital absorbed £35,332, leaving £44,753, payable to the State Treasury. During the financial year the State Treasury paid £168,813 interest and sinking fund on State loans in respect to these works, and the operations of the undertaking shewed a net deficiency of £124,060. Reticulation figures are as follows:—Towns reticulation, 239 miles; supply mains to towns, 80 miles; supply mains to mining centres, 66 miles; agricultural extensions, 483 miles; total mains, including main conduit, 1,219.

(iv) *Water Supplies for Towns.* Under the Water Boards Act 1904, the following water undertakings are administered by the Department:—Bridgetown, Brookton, Collie, Cue-Day Dawn, Derby, Dangin, Geraldton, Leonora, Meekatharra, Ora Banda, and Pingelly. Water supplies for Albany, Broome, Bunbury, Busselton, Carnarvon, Katanning, Port Hedland, Roeburne, Sandstone, Wagin, and Wyndham are administered by local boards under the supervision of the Department.

(v) *Mines Water Supplies.* At the present time the water stations under the control of the Chief Engineer for Water Supply number about 1,400, and are spread over an area of nearly 500,000 square miles. The principal works carried out by the Water Supply Department are as follows:—(a) Domestic supplies for mining towns and the supply of water for battery and general mining purposes. (b) Opening up the very remote portions of the State by means of tracks, of which there are about 4,000 miles. (c) The sinking of wells and bore-wells, also testing the country by means of boring to locate water, and thus enabling the mineral resources of the State to be systematically prospected. (d) Diamond drilling has also been carried out for the purpose of testing the country for minerals at depths unattainable with the ordinary boring plants. (e) Over 3,000 miles of stock routes have been opened up, and wells have been sunk at easy stages, capable of watering mobs of 400 head of cattle. Tanks, dams, and reservoirs have been made on the goldfields for the conservation of surface water, their total storage capacity being over 200,000,000 gallons, and their cost over £400,000.

(vi) *Water Supplies in Agricultural Areas.* Owing to the rapid development in agricultural districts in what a few years ago was practically unexplored country, and the consequent necessity for providing water for settlers, a large number of tanks were excavated, and wells sunk where suitable water had been proved by boring. Of 2,574 shallow bores put down, fresh water was obtained in 432, and stock water in 228, the others being salt or dry. The number of tanks excavated to 30th June, 1921, was 365; in addition, one tank was enlarged, making a total approximate capacity of 133,824,000 gallons, and the number of wells sunk 303. The capital expenditure for the financial year ending June, 1921, was £12,273.

(vii) *Land Drainage.* Under the Land Drainage Act 1900 the drainage undertaking for the Torbay-Grassmere District is administered by the Department. Undertakings controlled by Boards under the same Act are Bengier, East Jandakot, Harvey, Njookenbooroo, Stirling, Saidie, Wungong, and Wagerup.

6. *Tasmania.*—(i) *Hobart Water Supply.* The total capital cost to 31st December, 1921, was £369,401, but a considerable amount of reticulation work has been done out of revenue and not charged to capital account. The outstanding loans at 31st December, 1921, amounted to £317,805. At the same date the number of tenements supplied in the

city and suburbs was 9,350, the population 43,905, and the length of reticulation mains 97 miles. The revenue and expenditure for the years 1916 to 1921 were as follows :—

HOBERT WATERWORKS.—REVENUE AND EXPENDITURE, 1916 TO 1921.

Particulars.	1916.	1917.	1918.	1919.	1920.	1921.
	£	£	£	£	£	£
Revenue	24,801	21,677	24,160	26,832	28,287	30,671
Expenditure	27,676	28,794	26,490	27,468	30,696	33,773

(ii) *Hobart Sewerage System.* Up to 31st December, 1921, 75 miles of sewers had been laid at a cost of about £197,504, and 7,351 tenements had been connected. The revenue for the year was £17,811. The suburb of New Town was amalgamated with the city on the 1st January, 1920, and the survey and plans for sewerage in this area are well in hand. The laying of the outfall sewer is now being proceeded with. In connexion with the Queensborough District, now being sewerage, 12½ miles of sewers were laid up to 31st December, 1921, at a cost with outfall of £75,420, and 170 tenements were connected.

§ 4. Harbour Trusts.

1. Introduction.—In the chief ports and harbours of the Commonwealth, administrative bodies have been created, in whom is vested the control and management of the port with respect to dredging, wharf and harbour accommodation, pilotage, harbour dues, etc.

Of these Trusts or Boards some are purely departmental, some are nominated by Government, while others are comprised of members appointed by the municipal and other associations connected with the port. In the latter case, the Government is usually represented on the Board by one or more nominated members. The Boards and Trusts mentioned hereunder are the only ones for which information is at present available.

2. Sydney Harbour Trust.—(i) *Revenue, Expenditure, and Capital Cost.* The subjoined table gives particulars of the revenue and expenditure of the Trust, and also shews the total capital debt for properties, etc., vested in the Commissioners, the amount of interest payable on the debt, and the balance of revenue after deducting expenditure, interest, and the amount of the Commissioners' salaries :—

SYDNEY HARBOUR TRUST.—REVENUE, EXPENDITURE, CAPITAL DEBT, INTEREST, AND BALANCE, 1901 AND 1917 TO 1921.

Year ended the 30th June.	Revenue.				Expenditure.	Total Capital Debt.	Interest.(b)	Balance.
	Wharfage and Harbour Rates.	Tonnage Rates and Berthing Charges.	From Other Sources.	Total.				
	£	£	£	£	£	£	£	£
1901(a)	42,784	3,208	12,324	58,316	11,275	4,692,782	55,554	— 8,513
1917..	252,044	29,095	230,841	511,980	165,586(c)	8,598,939	330,954	15,440
1918..	280,476	26,862	269,121	576,459	170,854(c)	8,796,521	348,023	57,582
1919..	323,253	31,347	264,300	618,900	179,899(c)	8,691,972	336,823	102,178
1920..	323,306	22,398	312,609	658,313	206,450(c)	8,950,887	353,037	98,826
1921..	429,986	43,577	323,648	797,211	244,764(c)	9,449,213	438,210	114,237

(a) For the period from 11th February to the 30th June, 1901. (b) The rate of interest charged each year is the average rate on the total capital debt of the State, which varies. (c) Including expenditure for the renewal, replacement, or reconstruction of wharves or buildings.

NOTE.—The minus sign (—) represents a loss.

(ii) *Dredging and Towing.* The subjoined statement gives particulars of the dredging and towing done by the dredges and tug-boats owned by the Trust :—

SYDNEY HARBOUR TRUST.—PARTICULARS OF DREDGING AND TOWING, 1901 AND 1917 TO 1921.

Year.	Dredging.			Towing Dredged Material.		
	Tons Dredged.	Total Expenditure.	Expenditure per Ton.	Miles run Towing.	Total Expenditure in Towing.	Expenditure per Mile Towing.
	Tons.	£	Pence.	Miles.	£	Pence.
1901 ..	317,500	3,696	2.79	29,277	2,849	23.35
1917 ..	1,938,130	31,697	3.93	43,847	11,950	65.41
1918 ..	1,319,455	26,780	4.87	36,577	16,367	107.39
1919 ..	1,848,993	26,981	3.50	45,711	19,263	101.14
1920 ..	1,345,287	37,140	6.62	42,292	25,547	127.95
1921 ..	1,487,129	43,339	6.99	43,152	27,792	154.57

3. *The Melbourne Harbour Trust.*—(i) *Construction and Development.* Particulars of the origin and constitution of this Trust will be found in Official Year Book No. 12, pp. 970 *et seq.* Since the publication of that volume, the port and harbour have been developed by the extension of existing works and the construction of new piers, wharves, etc. The river has been considerably widened throughout almost its whole navigable course, and has now three swinging basins. The depth at low water has been increased to 27 feet. Further widening and deepening are being carried out, and additional sheds are being erected. Extensive shed accommodation is provided on the Victoria Dock wharves (including the Central Pier) and on the river wharves. The total length of sheds in the Port is 18,368 feet, covering an area of 1,085,295 square feet. The quantity of material raised by the dredging and excavation done in the improvement of the river and bay amounts to 71,000,000 cubic yards. During the ten years ending 31st December, 1921, the average cost of dredging per cubic yard was 2.71 pence and the cost of towing and depositing 4.07 pence, irrespective of depreciation of plant. The Trust has expended £334,774 in reclaiming land within its jurisdiction. The amount of material raised annually is about 2,500,000 cubic yards.

(ii) *Financial Operations.* The following table gives particulars of the revenue and expenditure of the Trust from 1917 to 1921 inclusive :—

MELBOURNE HARBOUR TRUST.—REVENUE AND EXPENDITURE, 1917 TO 1921.

Particulars.				1917.	1918.	1919.	1920.	1921.
REVENUE.								
Rates, rents, etc.	..	..	..	£ 312,654	£ 314,777	£ 323,253	£ 380,203	£ 491,677
Interest	..	..	..	31	123	193	46	42
Other receipts	..	..	..	7,610	10,691	10,851	10,253	9,718
Total	..	..	..	320,295	325,591	334,297	390,502	501,437

MELBOURNE HARBOUR TRUST.—REVENUE AND EXPENDITURE,
1917 TO 1921—*continued*.

Particulars.	1917.	1918.	1919.	1920.	1921.
EXPENDITURE.					
	£	£	£	£	£
Management and general expenses ..	49,205	45,373	45,570	51,178	57,226
Interest	93,996	95,980	104,245	106,735	114,860
Total	143,201	141,353	149,815	157,913	172,086
Less standing charges added to works ..	19,632	23,595	23,495	29,150	30,892
Total	123,569	117,758	126,320	128,763	141,194
Wharfage and other refunds ..	1,378	2,382	1,677	2,529	3,064
Consolidated revenue of Victoria ..	60,000	62,305	62,460	75,554	96,224
Flotation of loan expenses ..	1,005	3,012	7,956	300	29,525
Redemption of loans expenses ..	..	2,392	4,499	..	615
Maintenance	70,112	35,706	77,766	105,147	120,412
Total expenditure	256,064	223,555	280,678	312,293	391,034
Surplus on revenue account	64,231	102,036	53,619	78,209	110,403
Less depreciation and renewals account and sinking fund	51,747	52,000	52,500	52,500	65,000
Net surplus on revenue account ..	12,484	50,036	1,119	25,709	45,403

CAPITAL EXPENDITURE.

	£	£	£	£	£
Land and property	588	1,153	964	3,221	2,420
Deepening waterways	50,871	108,037	68,746	80,720	81,699
Wharves construction	62,246	37,321	77,305	50,084	79,206
Approaches construction	6,201	11,417	3,774	2,364	1,565
Other harbour improvements ..	26,923	7,352	3,068	2,936	14,099
Floating plant	3,814	811	1,435	834	2,957
General plant	1,728	130	509	883	991
Stock account	4,686	..	..	..	..
Total	157,057	166,221	155,801	141,042	182,937

4. **Geelong Harbour Trust.**—To the 31st December, 1921, this Trust had borrowed £591,000. The sinking fund at the same date stood at £28,667. The revenue receipts for the year 1921 were £49,636, and the disbursements £53,605.

5. **Bundaberg Harbour Board.**—The Harbour Board consists of eight members, representing the district shire councils and the shipowners and exporters, with one Government nominee. The revenue for 1921 amounted to £4,281, as against £4,838 for 1920; the expenditure for 1921 was £4,001, as compared with £5,834 for 1920. Dredging resulted in 23,500 tons of silt, etc., being lifted and deposited at sea.

6. Cairns Harbour Board.—For the year ended 31st December, 1921, the receipts from harbour and berthage dues and miscellaneous items amounted to £32,694, while the revenue from taxes and fixed rates was £31,111. The total income amounted to £37,922.

7. Rockhampton Harbour Board.—For the year 1921 the receipts were £29,136, including loan advances, £7,599; and the expenditure was £28,995, including £5,790, interest on loans.

8. Bunbury (Western Australia) Harbour Board.—The Board was constituted in 1909, and consists of five members appointed by the Government. The jetty (including new extension of 700 feet) is 2,850 feet long, and can accommodate nine or ten vessels. The depth of water alongside ranges from 18 to 29 feet. Electric and steam gantry cranes are available. Water is laid on for shipping, and the jetty is lighted by electricity. The capital expenditure to 30th June, 1921, was £417,611. The revenue for the year was £28,980, and the expenditure £8,843, the balance being paid into Consolidated Revenue to meet interest and sinking fund.

9. Fremantle Harbour Trust.—For the year ended 30th June, 1921, the total revenue of the Fremantle Harbour Trust was £301,965 and the expenditure £133,909. The gross amount paid to the Treasury for the year was £170,469, being interest £77,240, sinking fund £19,819, renewals fund £2,000, and surplus revenue £71,410.

10. Burnie (Tasmania) Marine Board.—A breakwater has been constructed 1,250 feet in length with a depth alongside up to 42 feet at low water, together with three timber wharves, 600 feet, 500 feet, and 400 feet long. The revenue for the year 1921 was £12,441, and the expenditure £5,823, including £1,500 interest on construction loan.

11. Hobart Marine Board.—The total capital debt on properties in connexion with the Harbour Trust vested in the Board is £96,350. The interest paid in 1921 amounted to £4,140, and the contributions to sinking fund, £1,260. The receipts and expenditure of the Board for the last five years were as follows:—

HOBART MARINE BOARD.—RECEIPTS AND EXPENDITURE, 1917 TO 1921.

Year.	Receipts.			Expenditure.		
	General.	Harbour Improvements, Debentures, etc.	Total.	General.	Harbour Improvements.	Total.
	£	£	£	£	£	£
1917	17,294	6,627	23,921	(a) 17,247	5,212	22,459
1918	20,046	3,775	23,821	(b) 20,887	3,131	24,018
1919	21,505	367	21,872	20,303	108	20,411
1920	30,584	4,568	35,152	27,392	3,859	31,251
1921	30,055	..	30,055	(c) 34,870	1,080	35,950

(a) Including £938 transferred from General Account to Harbour Improvements. (b) Including £3,775 transferred from General Account to Harbour Improvements. (c) Including £6,000 debentures purchased.

12. Launceston Marine Board.—The total capital debt on 31st December, 1921, was £303,861, of which £256,822 was incurred on the Tamar Improvement Scheme. The revenue for 1921 was £44,421 and the expenditure £45,688.

§ 5. Fire Brigades.

1. **New South Wales.**—(i) *Legislation.* Under the Fire Brigades Act of 1909, a Board of Fire Commissioners for New South Wales, consisting of five members, was formed and fire districts established. The cost of maintenance of fire brigades is borne in equal proportions by the Government, the municipalities, and the insurance companies concerned, but the expenditure must be so regulated that the proportion payable by the councils in a fire district must not exceed the amount obtainable from a farthing in the pound rate on the unimproved capital value of the district.

(ii) *Receipts and Disbursements of Board of Fire Commissioners of New South Wales.* The subjoined table shews the actual receipts and disbursements of the Board for the past five years in respect of the Sydney Fire District :—

NEW SOUTH WALES BOARD OF FIRE COMMISSIONERS.—RECEIPTS AND DISBURSEMENTS FOR SYDNEY FIRE DISTRICT, 1917 TO 1921.

Year.	Receipts.						Disbursements.
	From Government.	From Municipalities.	From Fire Insurance Companies.	From Firms.	From other Sources.	Total.	
	£	£	£	£	£	£	£
1917	34,283	34,283	33,562	721	4,103	106,952	103,539
1918	34,231	34,231	33,858	373	3,950	106,643	107,104
1919	34,198	34,198	33,819	379	4,339	106,933	115,637
1920	47,808	47,808	47,218	589	3,815	147,238	143,262
1921	54,355	54,355	53,820	535	6,457	169,522	163,528

The Sydney fire district includes the City of Sydney and suburbs, comprising a total area of 258 square miles. On the 31st December, 1921, the Board had under its control in this district 66 stations, 315 permanent men, 167 partially-paid firemen, 3 steam and 59 motor fire engines, 15 horses, 140,690 feet of hose, and 538 telephone fire-alarms. The length of wire used for telephone lines was 1,281 miles.

2. **Victoria.**—(i) *Legislation.* The Fire Brigades Act of 1915 provides for a Metropolitan Fire Brigades Board, and a Country Fire Brigades Board, each consists of nine members, with local committees in country districts. The income of each Board is derived in equal proportions from the Treasury, the municipalities, and insurance companies.

(ii) *Metropolitan Fire Brigades Board.* On the 30th June, 1921, this Board had under its control 41 stations, 270 permanent men, 130 partially-paid firemen, 50 special service firemen, 6 motor drawn steam fire engines, 8 petrol motor fire pumps, 57 other petrol motor appliances, 2 steam fire engines, 98,635 feet of hose, and 354 fire-alarm circuits having 1,073 street fire alarms, 1,038 containing telephones.

The following table gives particulars as to the financial operations of the Board during each year from 1916 to 1920-21 inclusive :—

VICTORIA.—REVENUE AND EXPENDITURE OF METROPOLITAN FIRE BRIGADES BOARD, 1916 TO 1920-21.

Particulars.	1916.	1917-18.	1918-19.	1919-20.	1920-21.
ORDINARY RECEIPTS.					
	£	£	£	£	£
Contributions	86,771	84,418	85,569	95,225	117,893
Receipts for services ..	7,595	6,645	7,197	9,651	10,807
Interest and sundries ..	4,110	1,960	2,766	3,593	11,797
Total	98,476	93,023	95,532	108,469	140,497
ORDINARY EXPENDITURE.					
	£	£	£	£	£
Salaries	55,612	58,900	60,915	67,060	85,537
Interest and sinking fund ..	13,397	13,610	14,971	12,970	14,100
Other expenditure	24,566	25,057	20,968	26,963	41,859
Total	93,575	97,567	96,854	106,993	141,496

(iii) *The Country Fire Brigades Board.* At the end of the year 1921 there were 113 municipal councils and 77 insurance companies included in the operations of the Act. All the brigades are volunteer brigades, but in the large centres a few permanent station-keepers and watchmen are employed. There were 135 registered brigades and 2,429 registered firemen at the end of the year 1921.

For the year 1921 the receipts of the Country Fire Brigades Board amounted to £19,995, and the expenditure to £20,353.

3. *Queensland.*—(i) *Legislation.* The Act of 1920 makes provision for the retention of existing fire districts, and for the constitution of new districts. For each district there must be a Fire Brigade Board consisting of seven members, and the cost of maintenance of each brigade is proportioned as follows :—The Treasurer two-sevenths, insurance companies three-sevenths, and local authorities two-sevenths. All volunteer fire brigades must be registered.

(ii) *Revenue, Expenditure, etc., of Fire Brigade Boards.* In the year 1921 there were twenty-seven brigades organised in towns in Queensland, and the following table gives particulars of revenue and expenditure for the year 1921 :—

QUEENSLAND.—FIRE BRIGADES, 1921.

Receipts.	Amount.	Expenditure.	Amount.
	£		£
From Government	14,637	Salaries and wages	31,513
„ Local authorities	14,524	Building, repairs, etc.	3,866
„ Insurance companies	22,313	Plant, stores, clothing, etc. ..	8,856
„ Other sources	3,211	Other	11,028
Total	54,685	Total	55,263

At the end of the year 1921 the fire brigades staffs comprised 112 permanent men, 261 partially paid, and 85 volunteers. The seven brigades in the Metropolis were amalgamated in July, 1921, and placed under the control of the Metropolitan Fire Brigades Board. They protect an area of 32 square miles, and their joint staffs comprise 136 men. They have 3 steam engines, 6 motor turbines, 16 reels, consisting of 4 horse, 8 motor, and 4 hand reels, and 37,873 feet of hose. There are 228 call points.

4. *South Australia.*—(i) *Legislation.* The Fire Brigades Act of 1913 provides for a Board of five members, and the expenses of maintenance of brigades are defrayed as to three-ninths by the Treasury, four-ninths by insurance companies, and two-ninths by the municipalities concerned.

(ii) *Fire Brigades Board.* The revenue of the Fire Brigades Board in 1921 amounted to £35,817. Brigades are established in the following municipalities, viz., Adelaide, Kensington and Norwood, Unley, Port Adelaide, Glenelg, Gawler, Kapunda, Moonta, Kadina, Port Pirie, Port Augusta, Wallaroo, Thebarton, Tanunda, Balaklava, and Burra. The strength of the brigades consists of 101 permanent firemen and 53 auxiliary firemen. The plant consists of 5 steam fire engines, 1 motor engine, 18 motor hose carriages, 1 floating fire engine, 4 hose reels, and 9 horses. The number of calls received during the year 1921 was 411, of which 18 were to fires of a serious nature. Of the total calls, 223 were in the metropolitan district.

5. *Western Australia.*—(i) *Legislation.* Under the 1916 Act every municipal or road board district is constituted a fire district under the control of the Western Australian Fire Brigades Board. The income of the Board is derived as to two-eighths from Government, three-eighths from municipalities, and three-eighths from insurance companies.

(ii) *Western Australian Fire Brigades Board.* The receipts of the Western Australian Fire Brigades Board for the year 1921 amounted to £40,745, and the expenditure to £36,109. The whole of the brigades throughout the State are now controlled by this Board, and number two permanent, nine permanent and partially paid, six permanent and volunteer, and twenty-four purely volunteer brigades; making a total of forty-one. The staff includes a chief officer, deputy chief officer, third officer, motor engineer, electrical engineer, 7 other officers, 70 permanent firemen, 31 partially-paid firemen, and 573 volunteer firemen.

6. *Tasmania.*—The municipal council of any municipality may, under the Act of 1920, petition the Governor to proclaim the municipality or any portion of it to be a fire district, each district to have a Board of five members. The expenses of each Board are borne in equal proportions by contributions from the Treasurer, municipalities concerned, and insurance companies insuring property within the district. The expenditure for the year 1921 for the Hobart Fire Brigade Board amounted to £4,581.

§ 6. Local Government Finance.

1. *Introduction.*—In the preceding parts of this section certain particulars have been given regarding local authorities in each individual State. It is proposed to give here in a comparative form for each State particulars regarding the financial operations of local governing bodies. The particulars given in the tables in the two next paragraphs relate to financial years ending as follows: New South Wales: for the calendar year 1920. Victoria: 30th September, 1920, except Melbourne, 31st December, and Geelong, 31st

August, 1920. Queensland: calendar year 1920. South Australia: Corporations, 30th November, and district councils, 30th June, 1920. Western Australia: 31st October, 1920, except road districts, 30th June, 1920. Tasmania: calendar year 1920.

2. Number, Revenue, Expenditure, and Valuation of Local Authorities.—The following table gives particulars of the number, revenue, expenditure, and valuation of local authorities in each State and in the Commonwealth during the year indicated above. It should be noted that, excepting in Tasmania, the metropolitan water supply systems are not under municipal control; the particulars given of revenue and expenditure for the five States other than Tasmania do not, therefore, include revenue and expenditure on account of these systems.

NUMBER, REVENUE, EXPENDITURE, AND VALUATION OF LOCAL AUTHORITIES(a) IN EACH STATE, 1920.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
No. of local authorities(a) ..	321	193	170	184	141	49	1,058

RECEIPTS.

	£	£	£	£	£	£	£
Rates—							
General ..		1,750,778	931,488	295,638	241,584	74,498	
Other (b) ..		361,899	384,858	118,421	183,468	180,934	
Government grants	5,637,478	74,563	303,664	201,146	54,376	29,072	13,233,531
Loans (c) and other sources ..		1,037,723	264,867	192,996	441,524	472,556	
Total ..	5,637,478	3,224,963	1,884,877	808,201	920,952	757,060	13,233,531

EXPENDITURE.

	£	£	£	£	£	£	£
Works, services, etc.		2,086,339	1,393,256	638,310	536,458	420,110	
Interest on loans and overdrafts		264,147	28,897	15,535	88,022	90,240	
Redemptions, sinking funds, etc. ..	5,542,717	128,664	48,370	16,084	72,870	199,010	13,054,928
Administration ..		246,851	187,306	82,180	84,733	45,931	
Other ..		378,118	248,626	70,280	127,105	14,769	
Total ..	5,542,717	3,104,119	1,906,455	822,389	909,188	770,060	13,054,928

VALUATIONS.

Capital value of ..	229,858,034	399,502,745	66,325,130	104,291,322	226,280,406	38,736,226	2864,993,863
Annual value of property ..	(e)	21,214,708	(e)	5,239,194	1,550,134	1,934,790	(e)

(a) Including particulars for all areas controlled by local governing bodies responsible for the construction and maintenance of roads and streets, such areas being variously known in the several States as cities, towns, boroughs, shires, municipalities, road districts, etc. (b) Exclusive of rates for water supply and sewerage in metropolitan and most other principal towns, such rates being collected by special boards or general Government. (c) Exclusive of loans in connexion with extraordinary works of construction. (d) Unimproved capital value of all ratable property. (e) Not available. (f) Excluding District Road Boards. (g) Incomplete.

3. Local Government Loans, 1920.—The following table gives particulars for each State of loans raised by local authorities during the year 1920, of loans current at the end of that year, of liability on account of interest and sinking fund, and of loans maturing during 1920 :—

PARTICULARS OF LOANS RAISED BY LOCAL AUTHORITIES, 1920.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	£	£	£	£	£	£	£
Loans from general Government—							
Raised during year ..	..	26,162	297,604	..	..	7,619	331,885
Current at end of year ..	..	1,401,623	756,531	..	46,369	491,961	2,696,484
Loans from other sources—							
Raised during year ..	1,545,574	249,546	..	28,476	81,404	251,486	2,156,486
Current at end of year ..	9,854,639	3,790,446	1,040,488	379,440	1,839,724	1,491,552	18,396,289
Total—							
Raised during year ..	1,545,574	275,703	297,604	28,476	81,404	259,105	2,487,871
Current at end of year ..	9,854,639	5,192,069	1,797,019	379,440	1,886,093	1,983,513	21,092,773
Current loans, exclusive of those obtained from general Government, raised within the Commonwealth ..	9,336,739	3,790,446	(a)	379,440	1,382,724	..	(a)
Annual liability on account interest ..	398,150	(a)	29,427	18,028	87,084	111,287	(a)
Total sinking fund at end of year ..	951,261	492,430	(a)	25,592	356,004	193,451	(a)
Amount of loans maturing during year—							
Redeemed ..	(a)	125,038	49,314	18,308	54,014	213,387	(a)
Renewed ..	(a)	(a)	(a)	..	..	..	(a)

(a) Not available.

SECTION XXVII.

LABOUR, WAGES AND PRICES.*

§ 1. Development of Trade Unions in Australia.

1. **Historical Development of Trade Unionism in Australia.**—A special article, reviewing the development of trade unionism since its inception, appeared in Year Book No. 9, pp. 937-41.

2. **Registration under Trade Union Acts.**—The benefits conferred by registering trade unions under the Trade Union Acts in force in the various States are not held in much repute; consequently the statistics of registered trade unions of employees not only do not represent the position of unionism, but, in addition, the statistics themselves for past years are so defective as to be practically valueless. The particulars furnish no reliable indication of the numerical and financial position of trade unions. Some of the registered unions fail to supply returns; this non-supply may lead to cancellation of the registration. Some of the unions have obtained the cancellation of their certificates of registration, the apparent reason being that they proposed registering under the Commonwealth Conciliation and Arbitration Act or a State Arbitration Act. In Queensland, some of the largest labour unions withdrew from registration during 1911, mainly on account of the necessity for closer restriction of their objects as set forth in their rules, consequent on legal decisions affecting trade unions. In Victoria and in South Australia very few of the existing unions are registered under the Trade Union Acts. It will be seen, therefore, that the available information is too meagre for statistical purposes.

3. **Registration under Industrial Arbitration Acts.**—Western Australia and New South Wales up to 30th June, 1908, were the only States with Industrial Arbitration Acts under which industrial associations could be, and actually were, registered. The number of registered unions in New South Wales shewed a gradual increase from 1902 to 1907, the figures in the latter year being 109 unions of employers, with 3,165 members, and 119 unions of employees, with 88,075 members. Under the Industrial Disputes Act, which succeeded the Arbitration Act of 1901, it was not necessary to furnish this information. Since the Act of 1908, industrial organisation proceeded rapidly, owing to a general desire on the part of the workers to obtain the status necessary to entitle them to the advantages offered by the Act. The Act of 1908 was repealed by the Industrial Arbitration Act of 1912, and in 1912 there were 117 industrial unions of employers and 192 industrial unions of employees on the register. On the 30th April, 1922, there were 114 industrial unions of employers and 161 industrial unions of employees on the register. In the Queensland Industrial Arbitration Act of 1916 provision is made for the registration of any industrial association or trade union of employees. The Act does not provide for the registration of employers' associations. On the 30th June, 1917, 50 unions of employees were registered, and the number on the register at the 31st December, 1921, was 80. In South Australia, provision is made in the Industrial Code 1920 for the registration of industrial unions. This Act came into operation on 1st January, 1921, and in August, 1922, there were 10 organisations of employees registered with 5,500 members. In Western Australia, the employers' unions numbered 45, with 441 members, in 1904; and 49, with 1,102 members, in 1921. From 1904 to 1908 unions of employees were in a fairly stationary condition. At the end of 1904 and 1905 there were 140 unions, with 15,743 and 15,461 members respectively, and in 1921, 122 unions, with 34,732 members. Registration under Commonwealth

* In Year Book No. 7 (pp. 992-3) a *résumé* was given of the functions and scope of the Labour and Industrial Branch of this Bureau.

legislation began in 1906. In that and the four following years, there was but one union of employers; another was registered in 1911. The unions of employees registered were 20 in 1906, with 41,413 members. On the 31st December, 1920, there were on the register 6 organisations of employers, with 6,170 members, and 122 organisations of employees, with 549,285 members. In August, 1922, there were on the register 9 organisations of employers with 5,719 persons, firms or corporations affiliated, and 138 organisations of employees with 575,774 members.

4. **Types of Trade Unions in Australia.**—The trade unions in Australia are very diverse in character, and range from the small independent association to the large interstate organisation, which, in its turn, may be merely a branch of a British or international union. Broadly speaking, there are four distinct classes of labour organisations, viz.:—(i) the *local independent*, (ii) the *State*, (iii) the *interstate*, and (iv) the *Australasian or International*, but a number of variations occur from each of these classes. The leading characteristics of each of these types were briefly outlined in Labour Report No. 2 (pp. 7 to 9) issued by this Bureau.

5. **Total Number of Unions, 1921.**—As already stated, the figures for trade unions registered under the Acts do not represent the position of unionism in Australia. In 1912 the Labour and Industrial Branch of the Commonwealth Bureau of Census and Statistics was established, and by the cordial co-operation of the officials of the labour organisations, comprehensive figures relating to the development of organised labour are now available. The following table gives particulars of the number of trade unions, the number of branch unions, and the number of members in each State, the Northern Territory and the Commonwealth at the end of 1921:—

TRADE UNIONS, BRANCH UNIONS, AND MEMBERS, STATES, NORTHERN TERRITORY, AND COMMONWEALTH, 1921.

State or Territory.	Number of Separate Unions.	Number of Branches.	Number of Members.
New South Wales	213	925	285,638
Victoria	159	466	195,971
Queensland	118	344	103,786
South Australia	108	150	55,701
Western Australia	116	173	45,334
Tasmania	79	83	15,842
Northern Territory	3	..	737
Total	796	2,141	703,009
Commonwealth(a)	382(a)	2,555(b)	703,009

(a) Allowing for interstate duplication. (b) Number of distinct organisations and interstate groups of organisations in the Commonwealth—not the total number of organisations, which are practically independent and self-governing. (See next page).

In the preceding table the number of separate unions in each State refers to the number of unions which are represented in each State, exclusive of branches within a State. That is to say, each union represented in a State is only counted once, regardless of the number of branches in that State. Except in the last line, the number of branches indicates the number of branches of State head offices, which may, of course, themselves be branches of an interstate or larger organisation. In taking the total number of separate unions in the Commonwealth (see last line but one), it is obvious that, in the case of interstate and similar unions, there will be duplication, since each such union is counted once in each State in which it has any branches. In the figures given in the last line allowance has been made for this duplication. State branches of interstate or federated unions, as well as sub-branches within a State, are included under the heading "Branches"

in the third column—last line. It should be observed, however, that the scheme of organisation of these interstate or federated unions varies greatly in character, and the number of separate Commonwealth unions does not fairly represent the number of practically independent organisations in Australia. In some of these unions the State organisations are bound together under a system of unification and centralised control, while in others the State units are practically independent and self-governing, the federal bond being loose and existing only for one or two specified purposes. It may be seen, therefore, that there are 382 distinct organisations and interstate groups of organisations in the Commonwealth, having 2,555 State branches and sub-branches, and a total of 703,009 members.

6. Number and Membership of Unions in the Commonwealth in Industrial Groups, at the end of the years 1914 to 1921.—The following table shews the number of unions and members thereof in the Commonwealth at the end of the years 1914 to 1921. The number of unions specified refers to the number of different unions represented in each State; that is to say, interstate or federated unions are counted once in each State in which they are represented, but sub-branches within a State are not counted.

NUMBER AND MEMBERSHIP OF UNIONS IN THE COMMONWEALTH IN INDUSTRIAL GROUPS, AT THE END OF THE YEARS 1914 TO 1921.

Industrial Groups.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
I. Wood, Furniture, etc. ..	20	20	20	19	20	20	19	19
II. Engineering, Metal Works, etc. ..	76	77	76	75	77	77	76	75
III. Food, Drink, Tobacco, etc. ..	70	72	69	74	80	77	71	66
IV. Clothing, Hats, Boots, etc. ..	30	31	28	26	28	27	26	25
V. Books, Printing, etc. ..	29	30	29	29	30	29	26	18
VI. Other Manufacturing ..	80	78	78	84	84	84	84	85
VII. Building ..	67	63	63	60	58	57	56	57
VIII. Mining, Quarrying, etc. ..	27	27	26	25	26	20	18	19
IX. Railway and Tramway Services ..	32	31	28	34	40	43	43	49
X. Other Land Transport ..	25	24	23	22	23	23	22	20
XI. Shipping, etc. ..	63	66	65	73	72	71	69	70
XII. Pastoral, Agricultural, etc. ..	11	12	10	10	9	8	9	9
XIII. Domestic, Hotels, etc. ..	22	20	22	19	20	20	23	24
XIV. Miscellaneous ..	160	162	168	197	200	215	254	260
Total	712	713	705	747	767	771	796	796

NUMBER OF MEMBERS.

I. Wood, Furniture, etc. ..	19,071	16,172	14,762	16,365	18,953	21,156	23,691	25,541
II. Engineering, Metal Works, etc. ..	42,108	47,104	49,230	47,023	47,135	49,043	53,870	57,012
III. Food, Drink, Tobacco, etc. ..	39,763	38,504	41,515	41,229	40,953	46,569	49,447	51,693
IV. Clothing, Hats, Boots, etc. ..	17,593	21,885	25,962	29,150	31,856	38,620	40,325	42,069
V. Books, Printing, etc. ..	9,821	10,784	11,079	11,401	11,972	13,259	15,136	15,059
VI. Other Manufacturing ..	29,002	30,648	32,119	30,017	30,673	34,901	39,710	38,873
VII. Building ..	36,593	37,739	36,255	34,772	35,761	37,301	40,348	42,244
VIII. Mining, Quarrying, etc. ..	39,733	33,024	33,515	34,029	35,519	40,278	41,777	39,967
IX. Railway and Tramway Services ..	71,260	76,482	75,896	79,520	74,813	83,183	89,069	88,731
X. Other Land Transport ..	17,687	17,208	15,719	14,728	14,487	15,903	17,862	16,944
XI. Shipping, etc. ..	44,536	42,903	45,868	51,746	50,433	48,598	41,668	40,840
XII. Pastoral, Agricultural, etc. ..	44,593	38,334	37,679	40,735	44,176	46,794	42,923	47,893
XIII. Domestic, Hotels, etc. ..	11,135	9,269	9,907	10,163	11,169	14,702	19,353	20,442
XIV. Miscellaneous ..	100,376	107,975	117,050	123,309	133,855	137,378	169,271	175,696
Total	523,271	528,031	546,556	564,187	581,755	627,685	684,450	703,009

Particulars are given in Labour Report No. 12 (p. 13) of the number of male and female members of unions and the percentage of such members on the total number of adult wage earners. Other tables in the same Report shew the classification of unions according to number of members and the number of central labour organisations. Information is also given below as to the development of trade unionism since 1901.

7. Development of Trade Unions in Australia, 1901 to 1921.—The following table shews for the years specified the total number of trade unions in the Commonwealth, and the number and membership of those unions for which returns are available.

NUMBER AND MEMBERSHIP OF TRADE UNIONS IN COMMONWEALTH,
1901 TO 1921.

Particulars.	1901.	1906.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Total number of unions ..	198	302	712	713	705	747	767	771	796	796
Number of unions for which membership available ..	139	253	712	713	705	747	767	771	796	796
Membership of these unions ..	68,218	147,049	523,271	528,031	546,556	564,187	581,755	627,685	684,450	703,009

These figures shew that while the number of unions in 1921 was more than treble the number in 1906, the estimated membership during the same period increased fourfold. During the last nine years the annual increase in membership was greatest in the year 1912, when it amounted to no less than 68,492, and least in 1915, when it was only 4,760.

8. Interstate or Federated Unions, 1921.—The following table gives particulars as to the number and membership of interstate or federated unions in 1921 :—

NUMBER AND MEMBERSHIP OF INTERSTATE OR FEDERATED UNIONS IN THE
COMMONWEALTH, 1921.

Particulars.	Unions Operating in—					Total.
	2 States.	3 States.	4 States.	5 States.	6 States. (a)	
Number of Unions ..	17	10	15	19	40	101
Number of Members ..	20,787	42,127	60,413	137,585	307,438	568,350

(a) Certain Unions in this Group have, in addition to Branches in each of the six States, a Branch in the Northern Territory.

It appears, therefore, that 101 out of the 382 separate associations and groups of associations in the Commonwealth are organised on an interstate basis. The membership of these 101 unions amounts to 568,350, or no less than 80.8 per cent. of the total membership (703,009) of all unions.

9. Central Labour Organisations.—In each of the metropolitan towns, as well as in a number of other industrial centres, delegate organisations, consisting of representatives from a group of trade unions, have been established. Their revenue is raised by means of a per capita tax on the members of each affiliated union. In most of the towns where such central organisations exist, the majority of the local unions are affiliated with the central organisation, which is usually known as the Labour or the Trades Hall Council or the Labour Federation. In Western Australia a unified system of organisation extends over the industrial centres throughout the State. In this State there is a provincial branch of the Australian Labour Party, having a central council and executive, and metropolitan and branch district councils, to which the local bodies are affiliated. The central council, on which all district councils are represented, meets periodically. In the other five States, however, the organisation is not so close, and though provision usually exists in the rules of the central council at the capital town of each State for the organisation of district councils or for the representation on the central council of the local councils in the smaller industrial centres of the State, the councils in each State are, as a matter of fact, independent bodies.

The table below shows the number of metropolitan and district or local labour councils, together with the number of unions and branches of unions affiliated therewith, in each State at the end of the year 1921:—

CENTRAL LABOUR ORGANISATIONS.—NUMBER, AND UNIONS AFFILIATED, 1921.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
Number of Councils	3	5	3	3	9	1	24
Number of Unions and Branch Unions affiliated ..	126	187	49	74	181	27	644

The figures given in the preceding table as to number of unions do not necessarily represent separate unions, since the branches of a large union may be affiliated to the local trades councils in the several towns in which they are represented.

Between the trade union and the central organisation of unions may be classed certain State or district councils, organised on trade lines and composed of delegates from separate unions, the interests of the members of which are closely connected by reason of the occupations of their members, such, for example, as delegate councils of bakers, bread carters, and mill employees, or of unions connected directly or indirectly with the iron, steel, or brass trades, or with the building trades.

§ 2. Laws Relating to Conditions of Labour.

1. Tabular Statement of Statutes affecting Labour.—The statutes in force at the end of 1921 in the several States of the Commonwealth, which, more or less directly, affect the general conditions of labour, are shewn in the table hereunder:—

LABOUR LAWS.—TABLE OF STATUTES IN FORCE IN AUSTRALIAN STATES, 1921.

New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
<p>1. <i>General—</i> Factories and Shops 1912 Early Closing 1899, 1900, 1906, 1910, 1915 and 1919 Saturday Half-Holiday 1910 Eight Hours 1916, 1920 Sunday Trading (Refreshment Rooms) 1916</p> <p>2. <i>Prevention of Strikes and Regulation of Rates of Wages—</i> Industrial Arbitration 1912, 1916, 1918 (2), 1919, 1920</p> <p>3. <i>Mining Industry—</i> Mines Inspection 1901, 1904 Coal Mines Regulation 1912, 1913, 1917</p> <p>4. <i>Security of Wages to Wage Earners—</i> Contractors' Debts 1897 Attachment of Wages Limitation 1900 Truck 1900, 1901, 1918 Bankruptcy 1898 (preference to wages)</p> <p>5. <i>Accommodation, Homes, etc.—</i> Shearers' Accommodation 1901 Housing 1912 ..</p> <p>6. <i>Inspection of Machinery, etc.—</i> Scaffolding and Lifts 1912 Boiler Inspection Regulations (under Factories and Shops 1912)</p>	<p>Factories and Shops 1915, 1919, 1920 (2)</p> <p>Factories and Shops 1915, 1919, 1920 (2)</p> <p>Mines 1915, 1921 Coal Mines Regulation 1915</p> <p>Employers and Employees 1915 Insolvency 1915</p> <p>Shearers' Hut Accommodation 1915 Closer Settlement (Workers' Homes) 1915 Housing and Reclamation 1920</p> <p>Lifts Regulation 1915 Boilers' Inspection 1915 (2), 1921</p>	<p>Factories and Shops 1900, 1908, 1914, 1916 (2), 1920</p> <p>Industrial Arbitration 1916</p> <p>Mining 1898, 1901, 1902, 1912, 1914, 1915, 1920 (2) Mines Regulation 1910, 1912, 1916</p> <p>Contractors' and Workmen's Lien 1906, 1921 Wages 1918 Wages 1918 .. Factories and Shops (as above) Insolvency 1874, 1876 Workers' Accommodation 1915, 1921 Miners' Homestead Perpetual Leases 1913 (2), 1921 Workers' Homes 1919</p> <p>Inspection of Scaffolding 1915 Inspection of Machinery 1915</p>	<p>Industrial Code 1920, 1921 Early Closing 1911, 1912</p> <p>Industrial Code 1920, 1921</p> <p>Mining 1893, 1895, 1900, 1911, 1918 Mines and Works Inspection 1920</p> <p>Workmen's Liens 1893, 1896 Wages Attachment 1898 Industrial Code 1920, 1921 Insolvent 1886, 1887, 1896, 1914, 1915, 1918</p> <p>Shearers' Accommodation 1905, 1916 Workers' Homes 1911, 1912, 1914, 1922</p> <p>Scaffolding Inspection 1907, 1908 Lifts Regulation 1908 Steam Boilers and Engine Drivers 1911, 1913</p>	<p>Factories and Shops 1920, 1922</p> <p>Industrial Arbitration 1912, 1920</p> <p>Mining 1904, 1919, 1920, 1921 Mines Regulation 1906, 1915 Mines and Machinery Inspection 1911 Coal Mines Regulation 1902, 1915</p> <p>Workmen's Wages 1898 .. Truck 1899, 1900, 1904 Bankruptcy 1892, 1898</p> <p>Shearers' Accommodation 1912 Workers' Homes 1911, 1912, 1914, 1922</p> <p>..</p> <p>Inspection of Machinery 1922</p>	<p>Factories, 1910 1911, 1917 Shops Closing 1911, 1913</p> <p>Wages 1920 Boards</p> <p>Mining 1917, 1918, 1920, 1921 Mines and Works Regulation 1915</p> <p>Wages Attachment 1900</p> <p>Bankruptcy 1870, 1899</p> <p>.. Homes 1919, 1920 Municipal Homes 1919</p> <p>.. Inspection of Machinery 1902, 1909, 1913</p>

LABOUR LAWS—TABLE OF STATUTES—*continued.*

New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.
7. <i>Trade Unions</i> — Trade Unions 1881 Trade Unions Re-registration 1920	Trade Unions 1915	Trade Union 1915	Trade Unions 1876	Trade Unions 1902	Trade Unions 1889
8. <i>Relations of Masters and Servants</i> — Masters and Servants 1902 Apprentices 1901, 1915	Employers and Employees 1915 Master and Apprentice 1915 Servants' Registry Offices 1915	Apprentices 1828, 1844 Wages 1918 Labour Exchanges 1915	Masters and Servants 1878 .. Employees' Registry Office 1915	Masters and Servants 1892 Masters and Apprentices 1873 Employment Brokers 1909, 1912, 1918	Master and Servant 1856, 1882, 1884, 1887
9. <i>Liability in case of Accidents</i> — ..	Employers and Employees 1915	..	Employers' Liability 1884, 1889	Employers' Liability 1894	Employers' Liability 1895, 1898, 1903
Workmen's Compensation 1916, 1920 (3)	Workers' Compensation 1915	Workers' Compensation 1916 (2), 1918, 1921	Workmen's Compensation 1911, 1918, 1919, 1920	Workers' Compensation 1912, 1920	Workers' Compensation 1918, 1920, 1921

2. **Registered Factories.**—The number of establishments registered under Factories Acts is shewn below :—

FACTORIES REGISTERED UNDER ACTS, 31st DECEMBER, 1920.

State.	Number of Registered Factories.	Numbers Employed.		
		Males.	Females.	Total.
New South Wales	9,745	92,566	33,479	126,045
Victoria	8,631	76,672	40,174	116,846
Queensland(a)	3,282	24,167	8,547	32,714
South Australia	1,960	15,455	5,208	20,663
Western Australia(c)	1,216	10,158	3,009	13,167
Tasmania(b)	1,004	7,869	1,739	9,608
Commonwealth	25,838	226,887	92,156	319,043

(a) At 31st March. (b) At 30th June. (c) Particulars for 1919. Figures for 1920 not available.

FACTORIES REGISTERED UNDER ACTS, 31st DECEMBER, 1921.

State.	Number of Registered Factories.	Numbers Employed.		
		Males.	Females.	Total.
New South Wales	10,087	88,819	33,565	122,384
Victoria	8,922	72,141	40,766	117,613 (a)
Queensland	3,426	24,411	8,409	32,820
South Australia	1,981	16,033	5,759	21,792
Western Australia	1,543	15,080	3,683	18,763
Tasmania	1,089	6,462	1,311	7,773
Commonwealth	27,048	222,946	93,493	321,145

(a) Includes 4,706 employers and their children working in factories.

3. Comparative Statement of Factories Law in Australia.—The tables on pp. 994 to 999 of Year Book No. 11 shew at a glance the chief provisions of the Factories and Shops Acts in the Commonwealth. Since the issue of that edition, new Acts have been passed in some States and Amending Acts in others, the effect being briefly as follows :—

(i) *New South Wales.* Early Closing (Amendment) Act 1919. Tobacconists' and hairdressers' shops are to close on 4 days at 7 p.m., on one day (Wednesday or Saturday optional) at 1 p.m., and on Fridays at 10 p.m.

(ii) *Victoria.* Factories and Shops Act 1919. The hour for closing shops on Friday nights is altered from 10 p.m. to 9 p.m.

(iii) *South Australia.* Industrial Code 1920. This Code consolidates the previous Factories Acts, and makes some important alterations, the principal being that the minimum wage to be paid to any employee in a factory is 10s. per week, and the total number of hours of employment as regards women and boys over 14 when overtime is worked, is limited to 55 per week.

(iv) *Western Australia.* Factories and Shops Act 1920. A considerable number of alterations have been made in the provisions relating to factories and shops, the more important of those which relate to factories being (a) the number of hands constituting a factory is now four or more, instead of six; (b) no premium whatever may be demanded; (c) the age of admission of girls into factories is raised to 15 years; (d) the maximum number of working hours for boys under 16 years and females is reduced to 44 per week and 8½ per day, with not more than 4½ hours continuous for children under 14 years and women; (e) overtime is limited to two hours per day, on two days per week, which must not be continuous, and 52 days in a year, while overtime pay must be at the rate of time and a half; (f) the employment of women is prohibited for six weeks before or after childbirth; (g) girls under 16 must not be engaged in typesetting, nor persons under 16 in dry-grinding or match-dipping, nor girls under 18 in melting or annealing glass, nor persons under 18 in charge of a lift; (h) all factories must be registered annually.

In shops the maximum number of hours which may be worked is reduced to 48 for male adults and to 44 for boys under 16 and women, while the latter may not be employed for longer than 8½ hours per day, except on one day a week when 9½ hours may be worked. There must also be at least one seat for every three women employed.

4. Mining Acts.—Under the Mining Acts the employment underground of all females and of boys under fourteen years is prohibited. A minimum age, usually seventeen, is fixed for employment as lander or bracedman at plats and landing places; no lander, bracedman, underground worker, or man in charge of motive power may be employed more than eight hours a day. A large number of scientific provisions for the protection of the lives and health of miners is also inserted in the Acts. Engine drivers must hold certificates of competency. Persons may be licensed to certify to the condition of boilers. Provision is made to enable injured persons or the relatives of persons killed to recover damages if the injury or death results from a breach of the regulations referred to above. Inspection of mines is fully provided for. Sunday labour is forbidden. In New South Wales and (since 1st February, 1910) Victoria still more advanced mining legislation exists; numerous sections are designed to ensure the well-being of the workers, such as limitation of hours, etc.

5. Employers' Liability and Workmen's Compensation Acts.—In each of the States, Acts have been passed allowing compensation to workers who have been killed or injured while engaged in industrial occupations. In the Commonwealth, one Act provides for compensation to all workers employed by the Commonwealth, and another to all seamen working on ships registered in Australia. In New South Wales, amendments of the Workmen's Compensation Act made provision for workmen exposed to dust and for Broken Hill miners. A conspectus of these Acts is given in the pages immediately following.

CONSPECTUS OF WORKMEN'S

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.
<i>Name of Act</i> ..	Workmen's Compensation Act 1916 and 1920 (3).	Workmen's Compensation Act 1915	The Workers' Compensation Act 1916 (2), 1918, and 1921.	The Workmen's Compensation Act 1911, 1918, 1919, and 1920.
<i>Definition of Employer</i>	Includes any body of persons, corporate or incorporate, and the legal representative of a deceased employer.	Includes any body of persons, corporate or incorporate.	Includes persons, firms, companies and corporations employing workers.	Includes any body of persons, corporate or incorporate
<i>Nature of Work to which Act applies.</i>	Any person who is under contract of service or apprenticeship, whether by way of manual labour, clerical work or otherwise.	Manual workers. Other workers with incomes up to £250.	Any person (including a domestic servant) who works under a contract of service or apprenticeship, whether by way of manual labour, clerical work or otherwise, including tributaries in mines and jockeys.	Manual only, with incomes up to £5 a week.
<i>Workers expressly excluded.</i>	Casuals, outworkers, persons whose remuneration exceeds £525 per annum and members of the employer's family dwelling in his house.	Workers other than manual earnings over £250. Police, outworkers, members of employer's family.	Persons earning over £10 per week at time of accident. Casuals, police, subscribers to Public Service Superannuation Fund, members of employer's family.	Persons earning over £8 a week. Outworkers, members of employer's family, seamen whose injury occurs outside jurisdiction, agricultural, horticultural, viticultural, dairying or pastoral workers where machinery is not used, clerks, domestic servants.
<i>Employer not liable to pay compensation for</i>	Injury disabling for less than one week.	Injury incapacitating for less than a week.	Injury incapacitating for less than three days.	First week of injury if disabled for less than two weeks.
<i>In event of insolvency maximum amount of compensation admitted as first charge on assets per individual.</i>	£200.	£200.	Insurance compulsory in State Accident Insurance Fund.	£100.
<i>Compensation in case of Death.</i>				
<i>If dependents left</i> ..	3 years' earnings, or £300, whichever larger; maximum, £500.	3 years' earnings, or £200, whichever larger; maximum, £500.	3 years' earnings or £300, whichever larger; maximum, £600.	4 years' earnings, or £200, whichever larger; maximum, £300.
<i>If no dependents, maximum amount for medical attendance and funeral expenses.</i>	£20.	£50.	£50.	£20.
<i>Compensation in case of Incapacity.</i>				
<i>Weekly payment</i> ..	66½ % of average weekly earnings; maximum, £3.	Half average weekly earnings; maximum, 30s.	Half average weekly earnings; and 5s. per week for each dependent child under 14 years; maximum, £2 (with children £3 10s.), minimum, £1.	Half average weekly earnings; maximum, single man 30s., married man £2.
<i>Maximum total liability</i> ..	£750.	£500.	£750.	£500.
<i>Compensation for Workers over 60 years of age who have entered into an agreement.</i>				
<i>Death, with dependents—Minimum</i> ..	..	£50.	..	£50.
<i>Incapacity—Minimum weekly payment</i> ..	..	5s., or quarter of weekly earnings, whichever larger.	..	5s.
<i>Maximum total liability</i> ..	..	£50.	..	£50.

COMPENSATION ACTS IN AUSTRALIA.

WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH. (Employees.)	COMMONWEALTH. (Seamen.)
Workers' Compensation Act 1912 and 1920.	The Workers' Compensation Act 1918, 1920, 1921.	Commonwealth Workmen's Compensation Act 1912.	Seamen's Compensation Act 1911.
Same as South Australia.	Same as South Australia.	The Commonwealth.	Same as South Australia.
Manual, clerical or otherwise with income up to £300 a year.	Work under contract of service or apprenticeship by way of manual labour, clerical work, or otherwise, on land or water.	Manual, clerical, or otherwise.	Navigation or working of ships registered in Australia. Seamen shipped under Articles of Agreement in Australia while under Commonwealth law included.
Persons whose remuneration exceeds £400 a year. Casuals, police, outworkers, members of employer's family.	Casuals, outworkers, police force, domestic servants under 16 years and not working 8 hours per day, and persons whose weekly earnings do not exceed £4.	Persons not employed in manual labour earning over £500 a year. Outworkers, naval and military forces on active service.	Seamen on vessels ordinarily propelled by oars, and those in naval or military service
Same as South Australia.	Injury incapacitating for less than three days.	..	Same as South Australia.
£150.	£100.	..	Full amount.
3 years' earnings, or £400, whichever larger; maximum, £500.	3 years' earnings, or £200, whichever larger; maximum, £400.	3 years' earnings, or £200, whichever larger; maximum, £500.	3 years' earnings, or £200, whichever larger; maximum, £500.
£100.	£30.	£30.	£30.
Medical attendance up to £1. Half average weekly earnings; maximum, £2 10s.	Half average weekly earnings; maximum, £2, minimum, £1.	Half average weekly earnings; maximum, £2.	Half average weekly earnings; maximum, 30s.
£500.	£500.	..	..
£100.	£100.	..	(If seamen entitled to Commonwealth Old-age pension, amount of compensation and pension together not to exceed 30s. weekly.)
10s.	20s.	..	..
£100.	£100.	..	..

CONSPECTUS OF WORKMEN'S

HEADING.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.
<i>Compensation for infirm workers who have entered into an agreement</i>				
Death—Minimum payment .. ..	..	£50.	..	£50.
Incapacity—Minimum weekly payment ..	..	5s., or quarter of weekly earnings, whichever larger.	..	5s.
Maximum total liability .. ..	..	£50.	..	£50.
<i>Compensation for workers under 21 years of age earning less than 20s. weekly.</i>				
Weekly payment ..	Average weekly earnings; maximum, 15s.	Average weekly earnings; maximum, 10s.	..	Average weekly earnings; maximum, 10s.
<i>Waiting time</i> ..	None.	One week.	Three days. Compensation from date of accident if incapacity lasts over three days.	One week. No compensation for first week unless incapacity lasts two weeks.
<i>Period after which lump sum can be substituted for weekly payment.</i>	Six months.	Six months.	Any time.	Six months.
<i>Tribunal, if claim not settled by agreement.</i>	Committee representative of employer and his workmen, if existing, or arbitration, or Judge of District Court or by an authorised Stipendiary or Police Magistrate.	Judge of County Court or Police Magistrate.	Insurance Commissioner, Industrial Magistrate, Court of Industrial Arbitration.	Arbitrator. If arbitrator not agreed on within one month, special Magistrate. Appeals to Supreme Court.
<i>Regulations for worker leaving the State in which he was injured.</i>	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker ceasing to reside in the State.	Same as South Australia.	If permanent incapacity proved, 156 times weekly payments substituted for weekly payments in case of worker leaving Commonwealth.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker leaving State.
<i>Proceedings for compensation not maintainable unless commenced within</i>	Six months.	Six months.	Six months.	Six months.

6. *Other Acts.*—Other legislation regulating conditions of labour has been enacted by the States. The British *Conspiracy and Protection of Property Act* (38 and 39 Vic., c. 83) has been adopted in all the States except New South Wales and Queensland. Servants' registry offices are placed under administrative control, and the rates of commission chargeable are fixed by regulation. Power is given to workmen to attach moneys due to a contractor who employs them, in order to satisfy a claim for wages, such wages being made a first charge on moneys due to a contractor. Workmen are given a lien for wages over material whereon they are working, even if it becomes part of other property. This is in addition to the common law lien, which ceases when possession of the property is parted with. Workmen's wages are protected from attachment. In Victoria, provision is made for the compulsory resumption of suburban lands to provide workmen's homes.

7. *General Results of Industrial Legislation.*—The results of the legislation described must be sought in the Reports of the Inspectors of Factories of the several States, and in the Reports issued by the Labour and Industrial Branch of this Bureau.

COMPENSATION ACTS IN AUSTRALIA—*continued.*

WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH. (Employees).	COMMONWEALTH. (Seamen).
£100.	£50, or 39 times average weekly earnings, whichever larger.	..	..
10s.	10s., or quarter of weekly earnings, whichever larger.	..	..
£100.	£100.	..	..
Average weekly earnings : maximum, 20s.	Average weekly earnings, maximum, 20s.	Same as New South Wales.	Same as New South Wales.
Three days.	None.	None.	One week.* No compensation for first week unless incapacity lasts two weeks.
Six months.	Two months.	Six months.	Six months.
Local Court.	Commissioner (under Local Courts Act 1896) in Court of Requests.	Arbitrator or County Court.	Arbitrator or County Court.
Weekly payments continue in case of worker leaving State.	Same as South Australia.	If permanent incapacity likely, quarterly substituted for weekly payments in case of worker leaving Australia.	If permanent* incapacity likely, quarterly substituted for weekly payments in case of worker leaving Australia.
Six months.	Six months.	Six months.	Six months, or 18 months if ship lost at sea.

Generally speaking, the perusal of these reports and of the reports of Royal Commissions which have inquired into the working of the Acts, affords satisfactory evidence that the Acts have, on the whole, effected their objects.

§ 3. Legislative Regulation of Wages and Terms of Contract.

1. *General.*—Two systems, based upon different principles, exist in Australia for the regulation of wages and general terms of contracts of employment. A "Wages Board" system exists in Victoria and Tasmania, and an Industrial Arbitration Court in Western Australia. In the industrial legislation of New South Wales, Queensland, and South Australia, both systems are embodied, Industrial or Wages Boards, as well as Industrial Courts, being instituted. In accordance with the provisions of the Acts in New South Wales and Queensland, the Industrial Courts in these States have been exercising the functions of Wages Boards, and the work of the existing Boards has been greatly curtailed. Practically all the awards in these States during the last three years have been made by the Industrial Courts. In Victoria, Wages Boards' decisions may be reviewed by the Court of Industrial Appeals. In New South Wales, Industrial Arbitration Acts of 1901

and 1905 instituted an Arbitration Court. This court expired on 30th June, 1908, having delivered its last judgment on the previous day. Wages Boards were substituted under the Industrial Disputes Act 1908, and subsequent years; while the Act of 1912 introduced the mixed system. The Industrial Arbitration (Amendment) Act, assented to on 22nd March, 1918, amends the law for the regulation of the conditions of industries and industrial arbitration. The Act provides for the establishment of a Board of Trade and of special and deputy Courts of Industrial Arbitration, and also for the appointment of Industrial Boards on the recommendation of the Court. In South Australia the Industrial Code 1920 provides for the constitution of an Industrial Court, which may have the assistance of assessors. Provision is also made for the appointment of a Board of Industry having somewhat similar powers to the Board of Trade in New South Wales. There is also the Arbitration Court of the Commonwealth, which has power, however, to deal only with matters extending beyond the limits of a single State. The Arbitration (Public Service) Act was assented to on the 7th October, 1920. The Act provides for the appointment of an Arbitrator whose duties shall be to determine all matters submitted to him relating to salaries, wages, rates of pay, or terms or conditions of employment of officers or employees of the Commonwealth Public Service. This Act superseded that of 1911, under which Commonwealth Public Servants had access to the Commonwealth Court of Conciliation and Arbitration. The Industrial Peace Act 1920, which was assented to on 13th September, 1920, applies to industrial matters in relation to conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State. Provision is made that the Governor-General may appoint a special tribunal or tribunals for the prevention and settlement of any industrial dispute or disputes.

TRIBUNALS FOR THE REGULATION OF

<i>Particulars.</i>	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
<i>Name of Act</i>	Industrial Arbitration Act 1912, 1916, 1918 (2), 1919, and 1920	Factories and Shops Act 1915, 1919, and 1920 (2)	Industrial Arbitration Act 1916
<i>Nature of Tribunals</i>	Court of Industrial Arbitration. Industrial Boards. Board of Trade	Court of Industrial Appeals. Wages Boards	Court of Industrial Arbitration. Industrial Boards
<i>How Tribunals are brought into existence</i>	Court constituted by Act. Industrial Boards by the Minister on recommendation of Industrial Court. Board of Trade constituted by Act	Court constituted by Act. Wages Boards by Governor-in-Council	Court constituted by Act. Industrial Boards by Minister on recommendation of Court
<i>Scope of Acts</i>	To any industry, etc., as the Minister on the recommendation of the Court may direct. Includes Government servants. Board of Trade declarations re living wage, apprenticeship, etc.	To any process, trade, business, or occupation specified in a resolution of both Houses of Parliament or Order in Council (as the case may be). Government servants are not included (a)	To all callings and all persons (including Government servants) except (1) State children; (2) domestic servants; (3) persons engaged in farming operations on dairy, fruit and agricultural farms
<i>How a matter is brought under review</i>	Reference by Court or Minister, or by application to the Board by employers (having not less than 20 employees) or industrial unions	Usually by petition to Minister	Upon reference by an industrial union or employer, or any twenty employees in any calling, or the Minister, or of the Court

(a) "The Railways Classification Board Act" 1919 and 1921 provides for a special tribunal to regulate wages and hours of employment of railway employees.

The chief aims of the Wages Board system are to regulate hours, wages, and conditions of labour and employment, by the determination of a Board usually brought into existence for any specified industry or group of industries by petition or application. Under the Industrial Arbitration Court system an industry does not technically come under review until a dispute has actually arisen. Most of the Acts, however, have given the President of the Court power to summon a compulsory conference. In Victoria, where the Wages Board system is in force, there is no provision against strikes, but in Tasmania, where that system has also been adopted, penalties are provided for a lock-out or strike on account of any matter in respect of which a Board has made a determination.

Particulars were given as to the historical development, mode of constitution and general provisions of Wages Boards and Arbitration Courts in Year Book No. 9, pages 960 to 966. These refer to the regulation of wages and working conditions, and the prevention and settlement of industrial disputes.

2. Comparative Statement of Tribunals for Regulating Wages in Australia.—The table on pages 864 to 867 shews at a glance the Acts which operate in fixing wages, the constitution and function of tribunals enacted under them, and the effect and extent of the tribunals' decisions. It will be seen that in all the States there is machinery for the regulation of wages.

Under the authority of the Commonwealth Government a War Precautions Coal Board appointed in November, 1916, to regulate wages, working conditions and other matters in the coal mining industry issued "Orders" during 1916 and 1918, but was inactive during 1917. Special tribunals to deal with the coal industry and the coke industry were appointed by the Industrial Peace Acts of 1920.

WAGES IN TRADES IN AUSTRALIA, 1921.

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH.(a)
Industrial Code 1920 and 1921	Industrial Arbitration Act 1912 and 1920	Wages Boards Act 1920	Conciliation and Arbitration Act 1904-1921. Arbitration (Public Service) Act 1911 and 1920. Industrial Peace Act 1920 (2)
Industrial Court. Industrial Boards. Board of Industry	Court of Arbitration	Wages Boards	Court of Conciliation and Arbitration
Court constituted by Act, Industrial Boards by the Minister on the recommendation of the Board of Industry. Board of Industry constituted by the Act	Constituted by the Act	By Governor pursuant to resolutions of Parliament and by Proclamation of Governor when Parliament not in session	Court of Record constituted by the Act
To any business, trade, manufacture, or calling carried on by way of trade or for purposes of gain (except agriculture). Includes Government servants. Board of Industry declarations re living wage, etc.	All industrial occupations other than domestic service. Includes certain Government workers	To any process, industry, business, etc., except agricultural, horticultural, or pastoral pursuits	Industrial disputes extending beyond limits of any one State or in Federal Capital or Northern Territories
Court—Submission by Minister, President (after compulsory conference), employers or employers' association, by not less than 20 employees or employees' association. Industrial Boards—By petitions, etc.	Industrial disputes referred by President or by an Industrial Union or Association	Usually by petition to Minister	Industrial disputes either certified by Registrar, submitted by organisation, referred by a State Industrial authority or by President after holding abortive Compulsory Conference

(a) Particulars shewn relate to Conciliation and Arbitration Act 1904-1920. A brief review of the Arbitration (Public Service) Act and the Industrial Peace Act is given in Labour Report, No. 11, pp. 117-121.

TRIBUNALS FOR THE REGULATION OF

Particulars.	NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.
<i>President or Chairman of Tribunal</i>	Court—Judge of Supreme Court, or a District Court Judge, or a barrister-at-law of 5 years' standing appointed by the Governor. Industrial Boards—Appointed by Minister on recommendation of Court. Board of Trade—Appointed by the Governor-in-Council	Court—Judge of Supreme Court appointed by Governor. Wages Boards—Appointed by Governor-in-Council on nomination of Board, or failing that on nomination by Minister	Court—Judge of Supreme Court or District Court or a barrister or solicitor of not less than 5 years' standing appointed by Governor. Industrial Boards—Appointed by Board, or failing that, by Minister
<i>Number of Members of Tribunal</i>	Court—Constituted by Judge or an additional or deputy judge or any two or more together. Industrial Boards—Chairman and 2 or 4 other members. Board of Trade—President, Deputy-President, 4 commissioners and 1 or more for rural industries	Court—President and 2 other persons. Wages Boards—Not less than 4 nor more than 10 members and a chairman	Court—Not exceeding 3, including president. Industrial Boards—Two or 4 in addition to chairman
<i>How ordinary members are appointed</i>	Court—Appointed by Governor. Industrial Boards—Appointed by Minister on recommendation of Court. Board of Trade—By Governor-in-Council	Court—Nominated by representatives of employers and employees on Wages Board or failing that by Minister. Wages Boards—Nominated by Minister. But if one-fifth of employers or employees object, representatives are elected by them	Members of Court by Governor-in-Council. Members of Industrial Boards by Minister on nomination by employers and employees respectively, and on the recommendation of the Court
<i>Decisions—how enforced</i>	By Registrar and Industrial Magistrate	By Department of Labour in Courts of Petty Sessions before Police Magistrates	By Court of Industrial Arbitration on application of any party to the award or agreement, or of Registrar, or Industrial Inspector
<i>Duration of decision</i>	For period fixed by Tribunal, but not more than 3 years, and after such period until varied or rescinded	Until altered by Board or Court of Industrial Appeals	12 months and thereafter, unless sooner rescinded or varied
<i>Appeal against decision</i>	To Court of Arbitration against decision of Boards	To the Court of Industrial Appeals	To Court of Industrial Arbitration against decision of Boards. Case may be stated for opinion of Full Bench
<i>Can Preference to Unionists be declared?</i>	Yes	No	Yes
<i>Provision against strikes and lock-outs</i>	Fourteen days' notice of intention must be given. Secret ballot, two-thirds of members must vote. Penalty for illegal strike, £500; for lock-out, £1,000	Determination may be suspended by Governor-in-Council for any period not exceeding 12 months	Provision made for taking ballot majority must vote in favour of strike or lock-out. Penalties for strikes or lock-outs, employer or industrial union, £100; other cases, £10
<i>Special provisions for Conciliation</i>	Special Commissioner. Conciliation Committees for colliery and other districts. Registered agreements	None	Compulsory Conference. Registered agreements

WAGES IN TRADES IN AUSTRALIA, 1921—*continued.*

SOUTH AUSTRALIA.	WESTERN AUSTRALIA.	TASMANIA.	COMMONWEALTH.
Court—Present President appointed by Act. On vacancy occurring, Governor to appoint person eligible for appointment as a Judge of Supreme Court. Industrial Boards—Appointed by Minister on nomination of Board, or failing such nomination, on selection by Board of Industry. Board of Industry—President or Deputy-President of the Industrial Court	A Judge of the Supreme Court appointed by Governor	Appointed by the Governor	President appointed by Governor-General from Justices of High Court for a term of 7 years
Court—Constituted by President or a Deputy-President, or any 2 or more of them together. Industrial Boards—Chairman and 4, 6, or 8 other members. Board of Industry—President and 4 Commissioners	Three, including President	Chairman, and as many representative members as the Minister declares	President. Provision is made for appointment of Deputy-Presidents
Court—Deputy Presidents by Governor. Industrial Boards—By Minister on nomination of employers and employees respectively, failing that on selection of President. Board of Industry—Appointed by Governor	Appointed by Governor, one each on recommendation of unions of employers and workers respectively	By Minister on nomination by employers and employees. Selected by Minister if less or more than required nominations.	Deputy-Presidents appointed by Governor-General from Justices of High Court or Judges of Supreme Court of a State, or from barristers or solicitors of the High Court or of the Supreme Court of a State, of not less than 5 years' standing
By Factories Department before Special Magistrate or Justices. Appeal to Industrial Court	By Arbitration Court on complaint of any party to the award or Registrar or an Industrial Inspector	By Chief Inspector or under Factories Act with consent of the Minister	By proceedings instituted by Registrar, or by any organisation affected, or a member thereof
Court—Period specified, but not more than 3 years, and thereafter until new award or order made. Industrial Boards—Period specified, not exceeding 3 years, unless previously cancelled by Minister or varied or rescinded by Board or Court	For period fixed by Court, not exceeding 3 years, or for 1 year and thenceforward from year to year until 30 days' notice given	For 2 years, and thereafter until new determination made	For period fixed by award not exceeding 5 years, and thereafter, unless the Court otherwise orders, until a new award has been made
To Industrial Court	No appeal except against imprisonment or a fine exceeding £20	To Supreme Court against validity of determination only	No appeal. Case may be stated by President for opinion of High Court
No	No	No	Yes; ordinarily optional, but mandatory if in opinion of Court preference is necessary for maintenance of industrial peace or welfare of society
Penalty £500, or imprisonment for 3 months	Employer or Industrial Union, £100; other cases, £10	Organisations, £500; individuals, £20	Penalty, £1,000
Compulsory Conference. Registered agreements	Special Commissioner. Compulsory conference. Registered agreements	None	Compulsory Conference. Court may temporarily refer to Conciliation Committee. Registered agreements

§ 4. Operations under Wages Board and Industrial Arbitration Acts.

1. **General.**—Particulars regarding operations under the Commonwealth Arbitration Acts and the various State Acts for the regulation of wages, hours, and conditions of labour, shewing the number of boards authorized and constituted, which had or which had not made any award or determination in each State; the number and territorial scope of awards or determinations, and the number of industrial agreements in force, were first compiled to the 31st December, 1913.

These particulars have from time to time been revised, and reviews to the end of approximately quarterly periods have been published in the periodical Labour Bulletins to the 30th June, 1917, and thereafter in the Quarterly Summaries to the 31st December, 1921. Information has also been compiled and included in the later issues of the Labour Bulletin and Quarterly Summary respecting the estimated number of work-people affected by awards or determinations and industrial agreements in each State. In addition, a brief quarterly epitome has been given of the number of awards and determinations made and industrial agreements filed under the Act in force in each State and the Commonwealth Conciliation and Arbitration and the Commonwealth (Public Service) Arbitration Acts. The following tabular statement gives particulars of the operations in each State and under the Commonwealth Statutes during each quarter of the years 1920 and 1921 respectively :—

AWARDS AND DETERMINATIONS MADE AND INDUSTRIAL AGREEMENTS FILED IN EACH QUARTER OF 1920 AND 1921.

State and Commonwealth.	1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.		Full Year.	
	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.	Awards or Determinations made.	Agreements Filed.
1920.										
New South Wales	19	17	52	6	38	12	30	29	139	64
Victoria ..	48	..	28	..	18	..	31	..	125	..
Queensland ..	42	14	44	6	46	..	36	3	168	23
South Australia	10	..	8	3	25	2	31	6	74	11
Western Australia	..	19	..	18	..	12	2	16	2	65
Tasmania ..	21	..	9	..	15	..	9	..	54	..
Commonwealth ..	5	66	8	87	2	9	17	21	32	183
Total ..	145	116	149	120	144	35	156	75	594	346
1921.										
New South Wales	16	12	24	6	19	14	40	8	99	40
Victoria ..	27	..	49	..	18	..	12	..	106	..
Queensland ..	25	3	28	5	20	8	3	..	76	16
South Australia	5	3	8	..	27	2	30	23	70	28
Western Australia	..	13	2	11	2	9	3	7	7	40
Tasmania ..	1	..	10	..	5	3	4	..	20	3
Commonwealth	3	26	21	14	1	258	9	17	34	315
Com. Pub. Ser. Arbitrator ..	..	..	1	..	2	..	7	..	10	..
Total ..	77	57	143	36	94	294	108	55	422	442

Owing to the prevailing drought conditions and the advent of war during the year 1914, varying restrictive measures were introduced either for the suspension or curtailment of the operations of industrial tribunals in each of the States. During the second quarter of 1915 these restrictions were somewhat relaxed in New South Wales and Queensland, and early in the third quarter operations gradually assumed normal conditions in all the States. During the third and fourth quarters of 1915 greater activity was evidenced in each State, and this activity continued during the subsequent years.

2. Boards Authorised, and Awards, Determinations, and Agreements in Force.—

In the following table particulars are given for all States, excepting Western Australia, in which State no Boards are in existence, of the number of Boards authorised and constituted, and including operations under the Commonwealth and the Western Australian Arbitration Acts, of the number of awards, determinations, and industrial agreements in force in all States at the 31st December, 1913, and during the four quarters of 1921 :—

PARTICULARS OF BOARDS AND OF AWARDS, DETERMINATIONS, AND INDUSTRIAL AGREEMENTS IN FORCE AT 31st DECEMBER, 1913, AND DURING EACH QUARTER OF 1921.

Dates.	Boards Autho- rised.	Boards Con- stituted.	Boards which had made Awards or Deter- minations.	Awards or Deter- minations in Force.(a)	Industrial Agree- ments in Force.
31st December, 1913	505	501	387(b)	575(c)	401
31st March, 1921	481	442	395(d)	1,043	993
30th June, 1921	535	475	411	1,067	957
30th September, 1921	566	554	440	1,091	1,206
31st December, 1921	569	557	479	1,047(e)	1,222

(a) Including awards made by Arbitration Courts and the Commonwealth Public Service Arbitrator. (b) Owing to a number of awards made under the New South Wales Industrial Disputes Act (1908) being still in force the Boards constituted for such industries under the Industrial Arbitration Act (1912) had not made any awards. (c) Excluding awards or determinations which expired in New South Wales (under the Act of 1908) on 31st December, 1913. (d) All Wages Boards in Tasmania constituted under the provisions of the Wages Boards Act 1910, as amended, were abolished on the 19th January, 1921, by the Wages Boards Act (1920). The Act of 1920 contains provision for the appointment of Wages Boards. (e) Explanation of this reduction will be found on pp. 118-119 of Labour Report No. 12.

It will be observed from the particulars set out in the above table that considerable expansion of the principle of the fixation of a legal minimum rate of wage and of working conditions took place during the eight years ending 31st December, 1921. At the end of 1921, 472 additional awards or determinations were in force in the Commonwealth. The number of industrial agreements* made and in force under the various Acts increased during the eight years under review by 821.

* The registration of industrial agreements is not provided for under the Act in force in Victoria, but such agreements may be registered and filed under the provisions of the Commonwealth Conciliation and Arbitration Act to operate in any or in all States.

In the following table particulars are given for each State and the Commonwealth of the number of Boards authorised, etc., at the 31st December of the years 1913, and 1920 and 1921:—

BOARDS AUTHORISED AND CONSTITUTED, AWARDS, DETERMINATIONS AND AGREEMENTS IN FORCE AT 31st DECEMBER, IN EACH OF THE YEARS 1913, 1920 AND 1921.(e)

Particulars.	At 31st Dec.	Commonwealth.		N.S.W.	Vic.	Q'land	S.A.	W.A.	Tas.	Total.
		Court.	Pub Ser. Arb.							
<i>Boards Authorised, etc. (a)—</i>										
Boards authorised ..	1913 ..	..	..	(b) 216	135	75	56	..	23	505
	1920 ..	..	..	265	161	..	(f) 2	..	47	475
	1921 ..	..	..	273	170	..	76	..	50	569
Boards constituted ..	1913 ..	..	..	(b) 223	(c) 132	74	51	..	21	501
	1920 ..	..	..	265	159	..	(f) 2	..	44	470
	1921 ..	..	..	273	168	..	76	..	40	557
Boards which have made Awards or Determinations ..	1913 ..	..	..	123	123	74	47	..	19	386
	1920 ..	..	..	245	150	..	(f) 2	..	43	440
	1921 ..	..	..	254	157	..	51	..	(h) 17	479
<i>Awards and Determinations—</i>										
Awards and Determinations in force ..	1913 ..	17	..	(d) 265	127	73	54	18	21	575
	1920 ..	(g) 106	..	359	155	212	100	64	45	1,041
	1921 ..	99	22	(i) 314	161	208	111	84	48	1,047
<i>State Awards and Determinations—</i>										
Applying to Whole State ..	1913 ..	..	..	32	8	8	..	..	15	58
	1920 ..	..	..	31	30	44	1	5	43	154
	1921 ..	..	..	38	37	57	3	5	41	181
Applying to Metropolitan area ..	1913 ..	..	..	58	..	28	53	13	1	153
	1920 ..	..	..	106	1	56	72	46	..	281
	1921 ..	..	..	85	1	54	81	56	..	277
Applying to Metropolitan and Country areas ..	1913 ..	..	..	49	105	1	..	1	5	161
	1920 ..	..	..	133	114	43	5	2	2	299
	1921 ..	..	..	128	112	35	5	3	5	288
Applying to Country areas ..	1913 ..	..	..	126	14	41	1	4	..	186
	1920 ..	..	..	89	10	69	22	11	..	201
	1921 ..	..	..	63	11	62	22	20	2	180
<i>Commonwealth Court Awards—</i>										
Awards in force in each State ..	1913 ..	..	..	13	17	15	16	9	13	..
	1920 ..	..	..	71	77	50	69	48	62	..
	1921 ..	..	..	58	67	33	59	34	50	..
<i>C'wealth Public Service Arbitrator—</i>										
Determinations in force in each State ..	1921 ..	..	..	21	20	20	21	21	19	..
<i>Industrial Agreements—</i>										
In force ..	1913 ..	228	..	75	..	5	11	82	..	401
	1920 ..	673	..	107	..	56	31	105	..	972
	1921 ..	922	..	108	..	44	39	106	3	1,222
C'wealth Agreements in force in each State ..	1913 ..	..	..	132	129	68	62	57	61	..
	1920 ..	..	..	220	305	57	71	37	107	..
	1921 ..	..	..	208	504	61	103	70	118	..
Number of Persons working under State Awards and Determinations (estimated)	1921 ..	..	..	275,000	171,000	100,000	27,000	35,000	15,000	623,000

(a) The figures for New South Wales are exclusive of Demarcation Boards. (b) Including boards which were subsequently dissolved, owing to alteration in the sectional arrangement of industries and callings. (c) Including one board subsequently superseded by three boards. (d) Omitting a number of awards which expired on the 31st December, 1913. (e) For particulars relating to the years 1914 to 1919, see Labour Reports No. 9, p. 113 and No. 10, p. 108. (f) Wages Boards appointed under the Factories Acts, 1907 to 1915, with the exception of those which had any matter part heard, were dissolved by the Industrial Code, 1920, on the 9th December, 1920. Provision is made in the new Act for the appointment of Industrial Boards. (g) Excluding awards made by the Court under the Arbitration (Public Service) Act 1911, which for the purposes of the Arbitration (Public Service) Act, 1920, are deemed to be determinations of the Commonwealth Public Service Arbitrator. (h) All Wages Boards constituted under the Wages Boards Act 1910, as amended, were abolished on the 19th January, 1921, by the Wages Board Act 1920. The particulars shewn relate to Boards appointed under the latter Act. (i) Explanation of this reduction will be found on pp. 118–119 of Labour Report No. 12.

§ 5. Fluctuations in Employment and Unemployment.

1. General.—The particulars shewn in the following tables are based upon information furnished by the secretaries of trade unions in the several States of the Commonwealth. It will be seen from the tables that the membership of unions regularly reporting has now reached nearly 400,000. Unemployment particulars are not collected from those

unions whose members have permanency of employment, such as railway and tramway employees, and public servants, or from unions whose members are casually employed (wharf labourers, etc.). Very few of the unions pay unemployment benefit, but the majority of the larger organizations have permanent secretaries and organizers who are closely in touch with the members and with the state of trade within their particular industries. In many cases unemployment registers are kept, and provision is also made in the rules for members out of work to pay reduced subscriptions. Taking these facts, and also the large membership of the numerous unions from which regular quarterly returns are being received, into consideration, it will be realized that percentage unemployment results based on trade union information may be taken to shew the general trend of unemployment existing in the several States. The tables do not furnish a complete register of unemployment, but for the purpose of making comparisons and shewing tendencies over a period of years, the percentages returned as unemployed, though not exact, are the most satisfactory available. The investigation for past years was limited to a record of the numbers unemployed at the end of each year. The results are subject to certain limitations, inasmuch as they do not take into account variations in employment and unemployment throughout the year due to seasonal activity and other causes. For the above reasons it is not safe to conclude that the actual percentage returned as unemployed in past years by trade unions at the end of each year is equal to the average percentage unemployed during the year. It may be mentioned that, in order to overcome the difficulties alluded to in regard to seasonal fluctuations, returns as to numbers unemployed have been collected from trade unions for each quarter since the beginning of the year 1913.

2. Number Unemployed in Various Industries, 1891 to 1921.—The following table shews for each of the years specified:—(a) The number of unions for which returns as to unemployment are available; (b) the number of members of such unions; (c) the number of members unemployed, and (d) the percentage of members unemployed on the total number of members of those unions for which returns are available.

UNEMPLOYMENT.—NUMBER OF UNIONS AND MEMBERS REPORTING AND NUMBER AND PERCENTAGE UNEMPLOYED, 1891 TO 1921 (4th QUARTER).

Particulars.	Unions.	Membership.	Unemployed.	
			Number.	Percentage.
1891	25	6,445	599	9.3
1896	25	4,227	457	10.8
1901	39	8,710	574	6.6
1906	47	11,299	753	6.7
1907	51	13,179	757	5.7
1908	68	18,685	1,117	6.0
1909	84	21,122	1,223	5.8
1910	109	32,995	1,857	5.6
1911	160	67,961	3,171	4.7
1912	464	224,023	12,441	5.5
1913	465	251,207	13,430	5.3
1914	439	250,716	27,610	11.0
1915	465	273,149	18,489	6.8
1916	470	292,051	19,562	6.7
1917	459	296,937	21,989	7.4
1918	475	308,850	16,919	5.5
1919	459	317,413	16,637	5.2
1920	450	351,013	27,463	7.8
1921, 1st Quarter	449	344,347	39,346	11.4
2nd "	453	363,675	45,622	12.5
3rd "	456	368,462	41,979	11.4
4th "	436	370,491	35,250	9.5

NOTE.—For years prior to 1921 the figures refer to the end of the year only; similar figures for each of the four quarters of the years since 1912 will be found in the Labour and Industrial Reports. The quarterly figures shew the number of persons who were out of work for three days or more during a specified week in each quarter; they do not include persons out of work through strikes or lockouts.

It will be observed that during 1921 a substantial increase occurred in the number unemployed, the highest percentage yet recorded (12.5) being reached in the second quarter of the year.

3. **Unemployment in Different Industries, 1921.**—The following table shows the percentages unemployed in several of the fourteen industrial groups. It may be observed that for those industries in which employment is either unusually stable or, on the other hand, exceptionally casual, information as to unemployment cannot ordinarily be obtained from trade unions. Hence, certain industries such as railways, shipping, agricultural, pastoral, etc., and domestic, hotels, etc., are insufficiently represented in the returns. Particulars are not, therefore, shewn separately for these groups, such returns as are available being included in the last group, "Other and Miscellaneous."

UNEMPLOYMENT IN DIFFERENT INDUSTRIES AT THE END OF YEAR 1921.

Industrial Group.	Number Reporting.		Unemployed.	
	Unions.	Members.	Number.	Percentage.
I. Wood, Furniture, etc. ..	18	20,729	2,047	9.9
II. Engineering, Metal Works, etc. ..	62	53,579	7,718	14.4
III. Food, Drink, Tobacco, etc. ..	52	31,827	4,484	14.1
IV. Clothing, Hats, Boots, etc. ..	23	40,031	850	2.1
V. Books, Printing, etc. ..	19	13,777	255	1.9
VI. Other Manufacturing ..	71	32,961	4,093	12.4
VII. Building ..	44	36,766	1,904	5.2
VIII. Mining, Quarrying, etc. ..	22	27,283	4,123	15.1
X. Other Land Transport ..	13	10,873	447	4.1
IX., XL, XII., XIII., and XIV., Other and Miscellaneous ..	112	102,665	9,329	9.1
All Groups ..	436	370,491	35,250	9.5

4. **Unemployment in each State, 1921.**—Any deductions which can be drawn from the data collected as to the relative degree of unemployment in the several States are subject to certain qualifications (in addition to those already stated on page 871), inasmuch as the industries included in the trade union returns are not uniform for each State. In comparing the results for the individual States, it must therefore be borne in mind that, to some extent at least, comparisons are being drawn between different industries and not only between different States. Nevertheless, since the industrial occupations of the people vary considerably in the several States, all comparisons between the States based on comprehensive data as to unemployment must, to some extent, suffer from the defect indicated.

UNEMPLOYMENT IN DIFFERENT STATES AT THE END OF YEAR 1921.

State.	Number Reporting.		Unemployed.	
	Unions.	Members.	Number.	Percentage.
New South Wales ..	125	173,195	20,626	11.9
Victoria ..	91	107,782	6,329	5.9
Queensland ..	54	30,849	3,485	11.3
South Australia ..	55	28,177	1,710	6.1
Western Australia ..	70	22,827	1,822	8.0
Tasmania ..	41	7,661	1,278	16.7
Commonwealth ..	436	370,491	35,250	9.5

§ 6. Current Rates of Wage in Different Occupations and States.

1. **Minimum Rates of Wage.**—The collection of material respecting the current rates of wage payable in different callings and in occupations in various industries carried on in each State of the Commonwealth was first undertaken by the Commonwealth Bureau of Census and Statistics in the early part of the year 1913. The particulars acquired were obtained primarily from awards, determinations and agreements under Commonwealth and State Acts, and therefore shew the minimum rates prescribed. In cases where no award, determination, or agreement is in force, particulars are given, where possible, of the ruling union or predominant rate as furnished by employers or secretaries of Trade Unions.

An extensive tabular presentation of the minimum rates of wage for adult male and female workers in the main occupations in the capital city of each State will be found in Labour Report, No. 12, pp. 194 to 216. Space will not permit of the inclusion of the detailed tables in this volume.

2. **Weighted Average Nominal Weekly Rate of Wage Payable to Adult Male Workers in each State, 31st December, 1921.**—The following table shews the weighted average nominal weekly rate of wage payable to adult male workers for a full week's work in each State and the Commonwealth. Taking the average for the whole Commonwealth as the base (=1,000), index-numbers for each State are also shewn. The number of occupations upon which these results are based amounts in the aggregate to no fewer than 3,948.

WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT MALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH, 31st DECEMBER, 1921.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Number of Occupations included	874	909	627	567	489	482	3,948
Weighted Average Weekly Rate of Wage	95s. 10d.	93s. 7d.	96s. 8d.	89s. 5d.	95s. 0d.	91s. 8d.	94s. 6d.(a)
Index-Numbers	1,014	990	1,023	946	1,005	970	1,000(a)

(a) Weighted average.

The results shew that the weighted average nominal weekly rate of wage was highest in Queensland, followed in the order named by New South Wales, Western Australia, Victoria, Tasmania, and South Australia.

3. **Weighted Average Nominal Weekly Rate of Wage Payable to Adult Male Workers in each Industrial Group, 31st December, 1921.**—The following table gives similar particulars in regard to the several industrial groups and to the weighted average for all groups combined. In computing the index-numbers the weighted average for all groups is taken as base (=1,000).

WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT MALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH INDUSTRIAL GROUP, 31st DECEMBER, 1921.

Industrial Group.	No. of Rates Included.	Weighted Average Weekly Wage (for Full Week's Work).	Index Numbers.
		<i>s. d.</i>	
I. Wood, Furniture, etc. ..	270	98 2	1,039
II. Engineering, Metal Works, etc. ..	636	98 2	1,039
III. Food, Drink, etc. ..	576	93 10	993
IV. Clothing, Boots, etc. ..	124	93 3	986
V. Books, Printing, etc. ..	205	104 7	1,106
VI. Other Manufacturing ..	875	95 0	1,005
VII. Building ..	190	102 5	1,084
VIII. Mining ..	161	105 4	1,115
IX. Rail and Tram Services ..	224	97 5	1,031
X. Other Land Transport ..	70	90 2	954
XI. Shipping, etc. ..	198	101 8(b)	1,076
XII. Pastoral, Agricultural, etc. ..	72	89 0(c)	941
XIII. Domestic, Hotels, etc. ..	114	84 2(d)	890
XIV. Miscellaneous ..	233	91 1	964
All Groups ..	3,948	94 6	1,000(a)

(a) Weighted average. (b) Including the value of victualling and accommodation, where supplied. (c) Including the value of board and lodging, where supplied. (d) Including the value of board and lodging, where supplied, as follows:—In Sydney 10s. 7d. to 23s. (according to class of establishment); in Melbourne 20s.; in Brisbane 15s. to 17s.; in Adelaide 22s. (Restaurants) and 25s. (Hotels and Clubs); in Perth 24s. 6d.; and in Hobart 25s. per week.

From the above table it may be seen that the highest weighted average wage was that paid in Group VIII. (Mining), 105s. 4d. per week, or 11.5 per cent. above the weighted average for all groups. The rates of wage range from 105s. 4d. per week down to 84s. 2d. per week, in Group XIII. (Hotels, etc.), which is 11 per cent. below the average of all groups.

4. **Weighted Average Nominal Weekly Rate of Wage Payable to Adult Female Workers in each State, 31st December, 1921.**—The following table shews the weighted average nominal weekly rate of wage payable to adult female workers for a full week's work in each State and the Commonwealth. Taking the average for the whole Commonwealth as the base (=1,000), index-numbers for each State are also shewn.

WEIGHTED AVERAGE NOMINAL WEEKLY RATE OF WAGE PAYABLE TO ADULT FEMALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH, 31st DECEMBER, 1921.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Number of Occupations included ..	85	87	37	47	24	28	308
Weighted Average Weekly Rate of Wage ..	49s. 0d.	47s. 10d.	50s. 3d.	45s. 2d.	56s. 4d.	47s. 6d.	48s. 8d.(a)
Index-Numbers ..	1,007	984	1,033	923	1,159	977	1,000(a)

(a) Weighted average.

It will be seen that the weighted average nominal weekly rate of wage for adult female workers was highest in Western Australia, followed in the order named by Queensland, New South Wales, Victoria, Tasmania, and South Australia.

5. **Weighted Average Nominal Weekly Rates of Wage Payable to Adult Female Workers in Industrial Groups, 31st December, 1921.**—The following table gives separate particulars regarding the weighted average nominal weekly rates of wage of females in the chief industrial groups in which they are employed, and also shews the weighted average for all groups combined. Index-numbers based on the average for the Commonwealth as the base (=1,000) are also given :—

WEIGHTED AVERAGE NOMINAL WEEKLY RATES OF WAGE PAYABLE TO ADULT FEMALE WORKERS FOR A FULL WEEK'S WORK, AND WAGE INDEX-NUMBERS IN INDUSTRIAL GROUPS, 31st DECEMBER, 1921.

Industrial Group.	No. of Rates Included.	Weighted Average Weekly Wage (for Full Week's Work).		Index-Numbers.
		s.	d.	
III. Food, Drink, etc.	35	43	9	899
IV. Clothing, Boots, etc.	114	48	7	999
I., II., V., VI., All Other Manufacturing combined	84	48	0	987
XIII. Domestic, Hotels, etc.	57	48	6(a)	998
XIV. Shop Assistants, Clerks, etc.	18	50	0	1,028
All Groups	308	48	8	1,000(b)

(a) See footnote (d) on preceding page.

(b) Weighted average.

6. **Relative Hours of Labour and Hourly Rates of Wage, 1914 to 1921.**—The rates of wage referred to in the preceding paragraphs of this section relate to the minimum rates payable for a full week's work. It should be observed, however, that the number of hours which constitutes a full week's work differs in many instances, not only as between various trades and occupations in each individual State, but also as between the same trades and occupations in the several States. In order to secure what may be for some purposes a more adequate standard of comparison, it is desirable to reduce the comparison to a common basis, viz., the rate of wage per hour. Particulars are given in the following table classified according to States, for male and female occupations separately, at the end of the year 1914, and from 1917 to 1921. These particulars relate to (a) the weighted average nominal weekly wage, (b) the weighted average number of working hours constituting a full week's work, and (c) the weighted average hourly wage. It should be observed that the weighted average weekly wage relates to all industrial groups combined, and includes the value of board and lodging, where supplied, in land occupations, and the value of victualling in marine occupations*; whereas the number of working hours and the hourly wage relate to all industrial groups other than Groups XI. (Shipping), and XII. (Agricultural, Pastoral, etc.). Owing to the fact that many of the occupations included in these two groups are of a casual or seasonal nature, and that the hours of labour in these occupations are not generally regulated either by awards or determinations of industrial tribunals or otherwise, the necessary data for the computation of the average number of working hours are not available.

The general effect of reducing the rates of wage to a common basis (i.e., per hour) is to decrease the amount of the difference shewn when comparing the weekly wage in the several States.

* See footnote to table on page 874.

WEIGHTED AVERAGE NOMINAL WEEKLY AND HOURLY RATES OF WAGE
PAYABLE TO ADULT WORKERS, AND WEEKLY HOURS OF LABOUR, 31st
DECEMBER, 1914, AND 1917 TO 1921.

Date.	Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
MALE WORKERS.								
31st Dec., 1914	Weekly Wage(a)	s. d. 56 2	s. d. 54 7	s. d. 53 5	s. d. 54 5	s. d. 62 10	s. d. 52 8	s. d. 55 7
	Working Hours(b)	49.35	48.66	48.64	48.59	48.18	48.62	48.87
	Hourly Wage(b)	1/2	1/1½	1/1½	1/1½	1/4½	1/1	1/2
31st Dec., 1917	Weekly Wage(a)	s. d. 64 5	s. d. 63 0	s. d. 65 3	s. d. 63 1	s. d. 68 11	s. d. 59 7	s. d. 64 2
	Working Hours(b)	48.41	48.14	47.19	47.82	48.10	48.48	48.10
	Hourly Wage(b)	1/3½	1/4	1/5	1/4	1/5½	1/3	1/4½
31st Dec., 1918	Weekly Wage(a)	s. d. 65 11	s. d. 65 6	s. d. 69 6	s. d. 65 6	s. d. 70 4	s. d. 61 2	s. d. 66 5
	Working Hours(b)	48.16	47.98	48.90	47.77	47.69	48.39	47.88
	Hourly Wage(b)	1/4½	1/4½	1/6	1/4½	1/6	1/3½	1/5
31st Dec., 1919	Weekly Wage(a)	s. d. 76 9	s. d. 72 0	s. d. 78 7	s. d. 70 5	s. d. 77 8	s. d. 69 0	s. d. 74 11
	Working Hours(b)	47.77	47.36	46.19	47.58	47.60	47.89	47.41
	Hourly Wage(b)	1/7½	1/6½	1/9	1/5½	1/7½	1/5½	1/7½
31st Dec., 1920	Weekly Wage(a)	s. d. 94 0	s. d. 86 1	s. d. 91 6	s. d. 82 8	s. d. 89 9	s. d. 85 9	s. d. 89 10
	Working Hours(b)	47.51	47.19	45.63	47.29	46.53	47.33	47.07
	Hourly Wage(b)	2/-	1/10	2/0½	1/8½	1/11½	1/10	1/11
31st Dec., 1921	Weekly Wage(a)	s. d. 95 10	s. d. 93 7	s. d. 96 8	s. d. 89 5	s. d. 95 0	s. d. 91 8	s. d. 94 6
	Working Hours(b)	45.66	46.95	45.52	47.07	46.24	46.84	46.22
	Hourly Wage(b)	2/1½	2/0½	2/2	1/10½	2/1	1/11½	2/0½
FEMALE WORKERS.								
31st Dec., 1914	Weekly Wage	s. d. 26 10	s. d. 27 9	s. d. 27 1	s. d. 24 1	s. d. 37 4	s. d. 25 10	s. d. 27 5
	Working Hours	49.34	48.54	49.82	49.33	49.44	50.76	49.11
	Hourly Wage	-/6½	-/6½	-/6½	-/5½	-/9	-/6	-/6½
31st Dec., 1917	Weekly Wage	s. d. 30 5	s. d. 30 4	s. d. 30 5	s. d. 27 9	s. d. 38 10	s. d. 28 5	s. d. 30 5
	Working Hours	48.98	48.32	48.99	48.73	48.78	49.83	48.71
	Hourly Wage	-/7½	-/7½	-/7½	-/6½	-/9½	-/6½	-/7½
31st Dec., 1918	Weekly Wage	s. d. 31 10	s. d. 31 3	s. d. 32 10	s. d. 29 5	s. d. 38 10	s. d. 28 9	s. d. 31 9
	Working Hours	48.35	48.32	48.37	48.73	48.78	49.83	48.42
	Hourly Wage	-/8	-/7½	-/8½	-/7½	-/9½	-/7	-/7½
31st Dec., 1919	Weekly Wage	s. d. 40 0	s. d. 34 5	s. d. 38 4	s. d. 33 3	s. d. 43 7	s. d. 33 0	s. d. 37 1
	Working Hours	47.53	47.63	46.76	47.67	48.12	49.28	47.54
	Hourly Wage	-/10	-/8½	-/9½	-/8½	-/11	-/8	-/9½
31st Dec., 1920	Weekly Wage	s. d. 46 0	s. d. 43 1	s. d. 44 11	s. d. 40 7	s. d. 52 11	s. d. 41 10	s. d. 44 6
	Working Hours	46.83	46.23	46.09	46.51	46.20	47.86	46.47
	Hourly Wage	-/11½	-/11½	-/11½	-/10½	1/1½	-/10½	-/11½
31st Dec., 1921	Weekly Wage	s. d. 49 0	s. d. 47 10	s. d. 50 3	s. d. 45 2	s. d. 56 4	s. d. 47 6	s. d. 48 8
	Working Hours	45.06	46.04	45.66	46.10	45.97	47.86	45.69
	Hourly Wage	1/1	1/0½	1/1½	-/11½	1/2½	1/-	1/0½

(a) Weighted average weekly rate in all industrial groups combined. (b) Weighted average working hours per week, and computed hourly rates of wage for all industrial groups excepting Groups XI. (Shipping, etc.), and XII. (Agricultural, Pastoral, etc.). Working hours have not been generally regulated by industrial tribunals for occupations classified in industrial groups XI. and XII.

From the foregoing table it may be seen that there has been a diminution in each of the States in the number of working hours constituting a full week's work for male and female occupations. The effect of these changes on the hourly rate of wage as compared with the general increase in the weekly wage is readily seen from the comparative index-numbers given in the following table. In each instance (male and female occupations separately) the basis taken is the weighted average for the Commonwealth at the 30th April, 1914, as base (=1,000).

**RELATIVE INDEX-NUMBERS FOR WEEKLY AND HOURLY WEIGHTED AVERAGE
WAGE, 30th APRIL, 1914, 31st DECEMBER, 1914, 1917 TO 1921.**

NOTE.—Weighted Average for the Commonwealth at 30th April, 1914, as base
(=1,000).

Date.	Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'wlth.
MALE WORKERS.								
30th April, 1914 ..	{ Weekly Wage ..	1,011	984	955	986	1,128	952	1,000
	{ Hourly Wage ..	998	980	963	991	1,170	933	1,000
31st Dec., 1914 ..	{ Weekly Wage ..	1,019	990	969	988	1,140	956	1,008
	{ Hourly Wage ..	1,010	990	985	993	1,173	936	1,009
31st Dec., 1917 ..	{ Weekly Wage ..	1,168	1,143	1,183	1,144	1,250	1,081	1,164
	{ Hourly Wage ..	1,162	1,138	1,209	1,145	1,252	1,079	1,164
31st Dec., 1918 ..	{ Weekly Wage ..	1,196	1,189	1,261	1,188	1,278	1,110	1,205
	{ Hourly Wage ..	1,196	1,192	1,297	1,176	1,282	1,120	1,210
31st Dec., 1919 ..	{ Weekly Wage ..	1,393	1,306	1,426	1,277	1,409	1,251	1,359
	{ Hourly Wage ..	1,405	1,322	1,512	1,262	1,408	1,259	1,378
31st Dec., 1920 ..	{ Weekly Wage ..	1,706	1,561	1,659	1,500	1,628	1,556	1,629
	{ Hourly Wage ..	1,725	1,570	1,753	1,492	1,686	1,567	1,655
31st Dec., 1921 ..	{ Weekly Wage ..	1,738	1,697	1,753	1,623	1,723	1,663	1,715
	{ Hourly Wage ..	1,817	1,741	1,865	1,637	1,796	1,675	1,779

FEMALE WORKERS.

30th April, 1914 ..	{ Weekly Wage ..	984	1,006	989	885	1,373	950	1,000
	{ Hourly Wage ..	980	1,021	976	881	1,386	920	1,000
31st Dec., 1914 ..	{ Weekly Wage ..	987	1,022	996	885	1,373	950	1,008
	{ Hourly Wage ..	983	1,035	983	881	1,364	920	1,009
31st Dec., 1917 ..	{ Weekly Wage ..	1,119	1,116	1,120	1,020	1,430	1,045	1,121
	{ Hourly Wage ..	1,122	1,134	1,122	1,027	1,440	1,029	1,130
31st Dec., 1918 ..	{ Weekly Wage ..	1,173	1,151	1,208	1,084	1,430	1,059	1,168
	{ Hourly Wage ..	1,191	1,169	1,226	1,092	1,426	1,044	1,185
31st Dec., 1919 ..	{ Weekly Wage ..	1,474	1,268	1,412	1,225	1,605	1,215	1,365
	{ Hourly Wage ..	1,523	1,307	1,483	1,262	1,639	1,211	1,410
31st Dec., 1920 ..	{ Weekly Wage ..	1,695	1,586	1,652	1,495	1,947	1,540	1,637
	{ Hourly Wage ..	1,777	1,685	1,761	1,578	2,069	1,580	1,730
31st Dec., 1921 ..	{ Weekly Wage ..	1,803	1,761	1,849	1,661	2,074	1,749	1,790
	{ Hourly Wage ..	1,965	1,878	1,989	1,770	2,215	1,794	1,923

7. **Weighted Average Nominal Weekly Hours of Labour.**—The following table shows the weighted average nominal hours of labour (exclusive of overtime) in a full working week for *male* workers in each State and the Commonwealth at the 30th April, 1914, and at 31st December, 1914 to 1921. There are shewn also index-numbers for each State based on the average weekly hours at the end of each of the periods specified, computed with the weighted average hours of labour for all States at the 30th April, 1914, as base (=1,000).

WEIGHTED AVERAGE NOMINAL HOURS OF LABOUR (EXCLUSIVE OF OVERTIME) WORKED BY ADULT MALE WORKERS DURING A FULL WORKING WEEK AND HOURS INDEX-NUMBERS IN EACH STATE AND THE COMMONWEALTH, 30th APRIL, 1914, 31st DECEMBER, 1914 TO 1921.

NOTE.—Index-Numbers based on the Average Hours of Labour for the Commonwealth at the 30th April, 1914 (48.93) as base (=1,000). The index-numbers in this table are comparable throughout.

Date.	Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	C'with.
30th April, 1914	Weighted average weekly hours of labour(a) ..	49.42	48.80	48.78	48.60	47.78	48.62	48.93
	Index-numbers ..	1,010	997	997	993	976	994	1,000
31st Dec., 1914	Weighted average weekly hours of labour(a) ..	49.85	48.66	48.64	48.59	48.18	48.62	48.87
	Index-numbers ..	1,009	994	994	993	985	994	999
31st Dec., 1915	Weighted average weekly hours of labour(a) ..	49.28	48.50	48.56	48.50	48.12	48.56	48.77
	Index-numbers ..	1,007	991	992	991	983	992	997
31st Dec., 1916	Weighted average weekly hours of labour(a) ..	48.51	48.22	48.27	48.14	48.11	48.55	48.33
	Index-numbers ..	991	985	987	984	983	992	988
31st Dec., 1917	Weighted average weekly hours of labour(a) ..	48.41	48.14	47.19	47.82	48.10	48.48	48.10
	Index-numbers ..	989	984	964	977	983	991	983
31st Dec., 1918	Weighted average weekly hours of labour(a) ..	48.16	47.98	46.90	47.77	47.69	48.39	47.88
	Index-numbers ..	984	981	959	976	975	989	979
31st Dec., 1919	Weighted average weekly hours of labour(a) ..	47.77	47.36	46.19	47.58	47.60	47.89	47.41
	Index-numbers ..	976	968	944	972	973	979	969
31st Dec., 1920	Weighted average weekly hours of labour(a) ..	47.51	47.19	45.63	47.29	46.53	47.33	47.07
	Index-numbers ..	971	964	933	966	951	967	962
31st Dec., 1921	Weighted average weekly hours of labour(a) ..	45.66	46.95	45.52	47.07	46.24	46.84	46.22
	Index-numbers ..	933	960	930	962	945	957	945

(a) Weighted average working hours per week for all industrial groups excepting Groups XI. (Shipping), and XII. (Agricultural, Pastoral, etc.), in which working hours have not been generally regulated by industrial tribunals.

It will be seen from the foregoing table that there has been a considerable diminution in each State during the period 1914 to 1921 in the number of working hours constituting a full week's work for male occupations. The weighted average weekly hours index-number for the Commonwealth at the 31st December, 1921, was 945, as compared with 1,000 at 30th April, 1914, a reduction of 5.5 per cent. The lowest weighted average nominal weekly hours index-number at the 31st December, 1921, was that for Queensland (930), followed in the order named by New South Wales (933), Western Australia (945), Tasmania (957), Victoria (960), and South Australia (962). During the period under review the percentage reduction in hours was greatest in New South Wales (7.6), followed by Queensland (6.7), Victoria and Tasmania (3.7), Western Australia (3.2), and South Australia (3.1). The greatest reduction in hours during 1921 took place in New South Wales, the result of the recommendations of a special court of inquiry constituted under the provision of the "Eight Hours (Amendment) Act 1920." As a result of the adoption of these recommendations, the hours of labour in many industries were reduced to 44 per week.

§ 7. Variations in Nominal and Effective Wages.

1. Variations in Wage Index-Numbers in Various Industries, 1901 to 1921.—The total number of different occupations for which particulars as to wages are available back to 1901 is 652. In 1913 the number of occupations was increased to 3,948 male and 308 female occupations. These wages relate generally to award rates, but in a few cases, more especially for the earlier years, when there were no award rates fixed,

predominant or most frequent rates have been taken. The occupations have been distributed over the fourteen industrial groups already specified, and index-numbers computed for each group for the whole Commonwealth. The wages refer generally to the capital town of each State, but in industries such as mining and agriculture, the rates in the more important centres have been taken.

The following table shews wage index-numbers for the whole Commonwealth in each of the fourteen industrial groups during the years specified. Rates of wage for females are not included. The index-numbers are "weighted" according to the number of persons engaged in different industrial groups in each State and the Commonwealth (see Labour Report No. 12, page 84). In the tables of index-numbers given in this Section, the weighted average wage in 1911 for all States or industries, as the case may be, is taken as base (=1,000). The result is that the index-numbers are comparable in all respects, that is to say, they shew not only the variations in wages from year to year in each State or industrial group, but they also furnish comparisons as to the relative wages in each State or industry, either in any particular year, or as between one year and another, and one State or industry and another.

VARIATIONS IN NOMINAL WAGE INDEX-NUMBERS IN DIFFERENT INDUSTRIES IN THE COMMONWEALTH, 1901 TO 1921. (WEIGHTED AVERAGE FOR ALL GROUPS IN 1911 = 1,000.)

Particulars.	Number of Occupations included.		1901.	1911.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
	1901 to 1912.	1913 to 1920.											
I. Wood, Furniture, etc.	27	270	1,019	1,125	1,142	1,161	1,174	1,245	1,288	1,345	1,479	1,855	1,916
II. Engineering, Metal Works, etc. . .	101	636	945	1,064	1,113	1,127	1,174	1,211	1,269	1,340	1,512	1,803	1,915
III. Food, Drink, etc.	34	576	871	991	1,074	1,086	1,127	1,194	1,241	1,288	1,473	1,742	1,832
IV. Clothing, Hats, Boots, etc. . .	13	124	708	981	1,019	1,034	1,037	1,104	1,163	1,198	1,433	1,687	1,819
V. Books, Printing, etc.	25	205	996	1,149	1,234	1,246	1,259	1,328	1,376	1,446	1,576	1,941	2,040
VI. Other Manufacturing . . .	102	875	907	1,013	1,076	1,093	1,125	1,203	1,245	1,289	1,470	1,738	1,854
VII. Building . . .	87	190	1,050	1,213	1,270	1,276	1,285	1,359	1,413	1,449	1,554	1,865	1,999
VIII. Mining, Quarries, etc. . . .	71	161	1,067	1,194	1,270	1,272	1,299	1,420	1,528	1,532	1,724	2,026	2,056
IX. Rail and Tram Services	68	224	1,021	1,113	1,165	1,165	1,187	1,236	1,286	1,345	1,532	1,816	1,901
X. Other Land Transport . . .	9	70	795	910	996	1,026	1,041	1,128	1,210	1,237	1,431	1,702	1,760
XI. Shipping, etc. . .	74	198	751	871	953	972	1,026	1,153	1,194	1,257	1,518	1,716	1,984
XII. Agriculture, Pastoral, etc. . . .	8	72	627	839	965	965	969	1,073	1,192	1,231	1,370	1,699	1,736
XIII. Domestic, Hotels, etc. . . .	17	114	598	887	918	935	948	995	1,052	1,104	1,338	1,571	1,642
XIV. Miscellaneous . .	36	233	759	929	1,045	1,054	1,065	1,137	1,185	1,234	1,389	1,656	1,778
All Groups (a) . .	652	3,948	848	1,000	1,076	1,085	1,102	1,184	1,252	1,296	1,462	1,752	1,844

NOTE.—The figures in the above table are comparable both horizontally and vertically.

(a) Weighted average: see graph on page 901 hereof.

It may be seen that the index-numbers increased during the whole period under review from 848 in 1901 to 1,000 in 1911, 1,076 in 1913, and 1,844 in 1921.

2. Variations in Wage Index-Numbers in Different States, 1901 to 1921.—The following table shews the progress in rates of wage for all industries in each State, the weighted average wage for the Commonwealth in 1911 being taken as the base (=1,000). These results are based generally upon rates of wage prevailing in the capital town of each State, but in certain industries, such as mining, rates are necessarily taken for places other than the capital towns.

VARIATIONS IN NOMINAL WAGE INDEX-NUMBERS IN DIFFERENT STATES, 1901 TO 1921.

(WEIGHTED AVERAGE WAGE FOR COMMONWEALTH IN 1911 = 1,000.)

States.	Number of Occupations Included.		1901.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
	1901 to 1912.	1913 to 1920.												
New South Wales	158	874	858	1,003	1,058	1,088	1,096	1,124	1,208	1,257	1,286	1,498	1,835	1,869
Victoria ..	150	909	796	985	1,038	1,058	1,065	1,078	1,148	1,229	1,278	1,404	1,679	1,826
Queensland ..	87	627	901	997	1,010	1,027	1,042	1,060	1,177	1,273	1,356	1,534	1,785	1,886
South Australia ..	134	567	819	1,013	1,048	1,061	1,062	1,067	1,151	1,231	1,278	1,372	1,613	1,745
Western Australia	69	489	1,052	1,152	1,191	1,214	1,226	1,236	1,272	1,345	1,372	1,566	1,751	1,853
Tasmania ..	54	482	719	799	934	1,025	1,028	1,039	1,112	1,163	1,193	1,346	1,674	1,788
Commonwealth(a)	652	3,948	848	1,000	1,051	1,076	1,085	1,102	1,184	1,252	1,296	1,462	1,752	1,844

(a) Weighted average.

NOTE.—The figures in the above table are comparable both horizontally and vertically.

The significance of the above figures since 1906 can be better appreciated by reference to the graph on page 901, which shews not only variations in wages in each State from year to year, but also the difference in wage level as between the several States. From this graph it is clearly seen that the difference between nominal wages in the several States has decreased very considerably since 1906. This difference is shewn at any point by the vertical distance between the graphs. Wages in Queensland and Tasmania have increased since 1914 at a higher rate than in any other State. It will be noticed that the increase in wages during 1921 was greater in Queensland than in New South Wales, and that now, in consequence, the wage in Queensland is higher than in any other State. The graphs for Victoria and South Australia lie very close together throughout the period. In Tasmania the first determination under the Wages Boards Acts 1910 and 1911 came into force in 1911. Since then wages in that State have increased rapidly, and their general level is now near the average for the Commonwealth.

3. Variations in Effective Wages.—In order to obtain an accurate measure of the progress in the material welfare of wage-earners, regard must be had to the purchasing-power of wages, and the index-numbers based merely upon nominal rates of wage must consequently be subject to some modification, inasmuch as they take no account of variations in the purchasing-power of money. In computing these effective wage index-numbers, the nominal wage index-numbers given in sub-section 2 hereof have been divided by the purchasing-power-of-money index-numbers in paragraph 10, sub-section 4 of this Section. The resulting index-numbers shew for each State and for the Commonwealth for the years specified the variations in *effective* wages.

The following table shews the effective wage index-numbers for each State for each of the years indicated from 1901 to 1921 :—

VARIATION IN EFFECTIVE WAGES IN EACH STATE AND COMMONWEALTH, 1901 TO 1921.(a)

Particulars.	1901.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
New South Wales ..	961	973	922	924	909	850	867	893	902	945	994	1,084
Victoria ..	915	1,037	981	1,007	964	844	877	950	947	948	939	1,051
Queensland ..	1,172	1,090	1,032	1,060	1,045	912	991	1,078	1,083	1,064	1,085	1,248
South Australia ..	948	957	906	947	929	847	896	989	957	935	919	1,056
Western Australia ..	1,024	1,023	1,032	1,076	1,073	1,011	1,005	1,079	1,107	1,068	1,083	1,152
Tasmania ..	827	838	896	976	943	843	870	894	880	900	911	1,002
Commonwealth ..	964	1,000	955	975	952	862	894	950	952	968	982	1,087

(a) As to the effect in abnormal periods, see Labour Report No. 6, pp. 20-2, Section IV., par. 3.

The figures in the preceding table from the year 1907 onwards are shewn in the graph on page 902. A comparison between this graph and the preceding one shews that the difference between nominal and effective wages is very marked. In the first place, the appearance of the graphs is entirely different. Instead of having a series of lines shewing a practically continuous and rapid upward trend, the effective wages shew (except for Tasmania) a series of fluctuating points, in which no very marked tendency is immediately discernible. It will be seen that, generally speaking, there has been no very great variation in the effective wage except in the years 1915 and 1916, during which prices of commodities advanced rapidly while wages, though increasing, did so at a much lesser rate. In 1920 effective wages decreased in Victoria and South Australia, and increased in the remaining States. In 1921 the effective wage index-number increased in all the States, the Commonwealth index-number reaching its highest level and exceeding for the first time the base year 1911 (1,000). This was due to the fact that while the cost of food, groceries, and house rent decreased, wages, on the other hand, increased. In the next table index-numbers are given for nominal wages and for the purchasing-power of money, together with the effective wage index-number derived therefrom.

One important feature common to both graphs (nominal and effective wages) is the manner in which the graphs for the individual States have, on the whole, approached more closely together. With the adoption of rates of wage fixed according to the relative purchasing-power of money, it appears probable that this tendency will continue in the future.

4. Variations in Effective Wages and Standard of Comfort, 1901 to 1921.—In the preceding paragraph particulars are given as to variations in effective wages in each State, due allowance having been made for variations in purchasing-power of money, though not for unemployment. Attention has also been drawn to the limitations to which they are subject in abnormal times.

For years prior to 1913 the data available as to unemployment are so meagre that comparative results allowing for variations both in purchasing-power of money and in unemployment cannot be accurately computed for the several States. In the subjoined table, however, the percentage of unemployment for the whole Commonwealth at the end of the years specified has been used in order to obtain results shewing the variations in unemployment upon effective wages. Column I. shews the nominal rate of wage index-numbers, and Column II. the relative percentages unemployed. Applying these percentages to the numbers shewn in Column I., and deducting the results from each corresponding index-number, so as to allow for relative loss of time, the figures in Column III. are obtained. These figures are then re-computed with the year 1911 as base, and are shewn in Column IV. In Column V. the purchasing-power-of-money index-numbers are shewn, and in Columns VI. and VII. the effective wage index-numbers are given, firstly, for full work, and secondly, allowing for lost time. These are obtained by dividing the figures in Columns I. and IV., respectively, by the corresponding figures in Column V. The resulting index-numbers shew for the Commonwealth, for the years specified, the variations in *effective wages*, or in what may be called the "standard of comfort."*

A comparison between the figures in Columns I. and VI. shews the relation between the nominal rates of wage and the purchasing efficiency of these rates. The figures in Column VII. shew variations in *effective wages* after allowing not only for variations in purchasing-power of money, but also for the relative extent of unemployment.

* This expression must not be confused with "standard of living." A change in the standard of living necessarily involves a change in regimen (see Labour Report No. 1), that is, a change in the nature or in the relative quantity of commodities purchased, or both. A change in the "standard of comfort" merely implies a variation in effective wages, which variation may, or may not, result in, or be accompanied by, a change in the "standard of living."

**UNEMPLOYMENT, PURCHASING-POWER-OF-MONEY AND NOMINAL AND
EFFECTIVE WAGE-INDEX NUMBERS, 1901 TO 1921. (a)**

Year.	I. Nominal Wage Index- Numbers.	II. Percentage Unem- ployed.	Rates of Wage Index- Numbers, allowing for Lost Time.		V. Purchas- ing-power- of-money Index- Numbers.	Effective Wage Index-Numbers.	
			III. Actual.	IV. Re-com- puted. (1911 = 1,000).		VI. Full Work.	VII. Allowing for Unemploy- ment.
1901 ..	848	6.6	793	832	880	964	945
1906 ..	866	6.7	808	848	902	960	940
1907 ..	893	5.7	842	884	897	996	986
1908 ..	900	6.0	846	888	951	946	934
1909 ..	923	5.8	870	913	948	974	963
1910 ..	955	5.6	901	945	970	985	974
1911 ..	1,000	4.7	953	1,000	1,000	1,000	1,000
1912 ..	1,051	5.5	993	1,042	1,101	955	946
1913 ..	1,076	5.3	1,021	1,071	1,104	975	970
1914 ..	1,085	11.0	966	1,014	1,140	952	889
1915 ..	1,102	6.8	1,027	1,078	1,278	862	844
1916 ..	1,184	6.7	1,105	1,159	1,324	894	875
1917 ..	1,252	7.4	1,159	1,216	1,318	950	923
1918 ..	1,296	5.5	1,225	1,285	1,362	952	943
1919 ..	1,462	5.2	1,386	1,454	1,510	968	963
1920 ..	1,752	7.8	1,615	1,695	1,785	982	950
1921 ..	1,844	9.5	1,669	1,751	1,697	1,087	1,032

(a) As to the effect in abnormal periods, see Section IV., par. 3, of Labour Report No. 6.

During the period 1901-21, while the nominal wage index-number rose from 848 to 1,844, an increase of 117.5 per cent., prices rose from 880 to 1,697, or by 92.8 per cent., the net result therefore being that effective full time wages rose by only 12.8 per cent. Compared with 1911, effective wages shew a rise of 8.7 per cent., although nominal wages increased by 84.4 per cent.

§ 8. Changes in Rates of Wage.

1. General.—The collection of information regarding changes in rates of wage throughout the Commonwealth dates from the 1st January, 1913.

(i) *Definition of a Change in Rate of Wage.* For the purpose of these statistics a change in rate of wage is defined as a change in the weekly rates of remuneration of a certain class of employees, apart from any change in the nature of the work performed or apart from any revision of rates due to increased length of service or experience. It is obvious that under this definition certain classes of changes are excluded, such, for example, as (a) changes in rates of pay due to promotion, progressive increments, or, on the other hand, to reduction in pay or grade to inefficient workers, and (b) changes in average earnings in an occupation due to a change in the proportions which higher paid classes of workers bear to lower paid classes. Bonuses to employees have not been taken into account in the tabulations. Each single change recorded relates to a change in the rates of wage effected in a specific industry or calling, and includes any and all changes to workers in that industry, irrespective of the different number of separate occupations

or trades affected. Further, it should be observed that in some instances a change may relate to the employees of a single employer or to those of a number of employers, according to the instrument or method operating to bring about the change.

(ii) *Sources of Information.* Primary information merely as to the fact that a change in rate of wage has occurred is obtained through the following channels:— (a) the Industrial Registrar or Chief Inspector of Factories in each State; (b) Reports from Labour Agents and Correspondents; (c) Quarterly reports from Secretaries of Trade Unions; (d) Returns relating to industrial disputes which resulted in changes in rates of wage; (e) Reports in newspapers, labour and trade reviews, and other publications.

(iii) *Collection of Particulars concerning Changes.* On the occurrence of a change in rate of wage, forms* (prescribed under the Census and Statistics Act 1905) are issued to employers and employers' associations (if any) and to the secretaries of the trade unions, the members of which are affected by the change. The particulars which have to be inserted in these forms furnish information regarding the occupations of the workers affected, the number of workers in each occupation, the rates of wage paid before and after the change, the locality affected, and the date on which the change took effect. Information must also be furnished regarding employers and employers' associations concerned (if any), and the method by which the change was effected.

When the forms are returned from the various persons who are required to complete them, the returns are checked and compared with each other and with copies of awards, determinations, and agreements. In all cases when the information furnished on the forms is incomplete or unsatisfactory, further inquiries are made, and the figures checked by reference to census results, industrial statistics, factory reports, etc.

2. Comparative Summary of Changes in Rates of Wage in each State, 1913-1921.—

The following table gives particulars of changes which occurred in each State of the Commonwealth during the years specified. As regards the number of persons affected, the particulars given refer to the total number of persons ordinarily engaged in the various industries. The results as to the amount of increase in wages are computed for a full week's work for all persons ordinarily engaged in the several industries and occupations affected, and in cases of changes in existing minimum rates under awards or determinations of industrial tribunals, it has ordinarily been assumed (in the absence of any definite information to the contrary) that the whole of the employees in each occupation received the minimum rates of wage before and after the change.

It should be clearly understood that the figures given in the third division of the following table (amount of increase per week) do not relate to the increase each week, but only to the increase in a single week on the assumption that the full number of persons ordinarily engaged in the particular trade or occupation affected by the change were employed during that week. It is obvious, therefore, that the aggregate effect per annum cannot be obtained without making due allowance for unemployment and for occupations in which employment is seasonal or intermittent. It is also obvious that since unemployment and activity in all branches of industry may vary from year to year, and in many branches from season to season also, no accurate estimate of the actual effect of the changes in the total amount of wages received or paid per annum can be made until the determining factors have been investigated. These factors are (a) the amount of unemployment, and (b) the period of employment in seasonal industries.

It should be observed that changes brought about by awards and agreements under the Commonwealth Conciliation and Arbitration Act, the Arbitration (Public Service) Act, and the Industrial Peace Act 1920 are necessarily included hereunder as changes in each State to which such awards and agreements apply. The average increase per head per week is computed to the nearest penny.

* Since these forms are issued under the authority of the Census and Statistics Act 1905, it is compulsory for prescribed persons to furnish the information required.

CHANGES IN RATES OF WAGE.—NUMBER AND EFFECT OF CHANGES IN EACH STATE AND TERRITORY, 1913 TO 1921.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	N.T.	(a) All States.	W'wealth.
No. of Changes	1913 149 1914 185 1917 201 1918 229 1919 457 1920 734 1921 353	81 69 106 201 218 354 247	41 60 142 236 216 300 233	28 18 78 113 136 231 166	30 42 55 63 112 209 108	12 19 38 46 128 154 77	.. .. 16 4 18 7 ..	.. .. 1 4 4 10 16	329 384 637 896 1,284 1,999 1,200
No. of Persons Affected	1913 89,618 1914 56,489 1917 101,158 1918 146,399 1919 280,031 1920 454,610 1921 272,782	49,254 29,876 68,272 110,027 125,693 258,211 238,084	16,645 20,198 72,843 74,174 116,627 145,464 115,722	4,574 5,624 20,209 16,239 35,377 76,605 44,696	3,036 8,399 12,997 9,871 26,673 55,489 23,017	3,005 4,262 5,288 3,631 16,108 28,317 14,771	.. .. 1,143 624 1,287 703 ..	.. 390 11,000 616 2,095 7,887 23,503	166,132 125,218 292,910 361,581 603,891 1,027,286 732,265
Total Net Amount of Increase per Week	1913 21,789 1914 13,558 1917 28,896 1918 32,194 1919 137,642 1920 228,186 1921 38,371	9,880 6,688 15,129 25,514 43,930 119,706 77,425	3,702 5,125 20,083 19,699 43,718 69,748 30,790	1,279 1,941 6,070 3,885 11,989 30,316 13,409	428 2,423 3,407 2,133 10,249 25,195 11,395	635 804 1,987 1,323 7,350 14,593 6,370	.. .. 635 273 618 684 ..	.. 143 4,800 239 949 6,280 7,898	37,713 30,685 81,007 85,260 256,445 494,708 185,658
Average Increase per Head per Week	1913 4 10 1914 4 10 1917 5 9 1918 4 5 1919 9 10 1920 10 0 1921 2 10	s. d. 4 6 4 5 4 8 7 0 9 3 6 6	s. d. 4 5 5 1 5 6 5 4 7 6 9 7 5 4	s. d. 5 7 6 11 6 0 4 9 6 9 7 11 6 0	s. d. 2 10 5 9 5 3 4 7 7 8 10 4 10 1	s. d. 4 3 8 9 9 2 7 6 9 2 10 4 8 7	s. d. 11 1 8 9 9 7 15 11 ..	s. d. 8 9 7 9 9 1 15 11 6 9	s. d. 4 6 4 11 5 6 4 9 8 6 9 8 5 1

(a) Changes recorded in this column are common to all States, as the particulars relating to the number of workpeople affected and the net amount of increase per week in each State were not ascertainable.

In point of number of changes in each State, New South Wales was first, Victoria second, and Queensland third, in each of the years 1913 to 1916. During the year 1917 the number of changes in Queensland exceeded the number recorded in Victoria, while during the year 1918 the number of changes in Queensland was greater than the number recorded as having taken place in New South Wales. It will be seen from the table that the number of changes in rates of wage recorded during the year 1920 is higher in each State than during any previous year. There was a noticeable decrease in the total number of changes recorded during 1921 as compared with the year 1920, the reduction being general in all States. The relative position of the States in regard to the numbers of changes effected, and also in regard to the numbers of workers affected in each year is, of course, largely due to the magnitude of the different industries and callings in which changes took place.

The number of workpeople who were affected by changes in rates of wage during the year 1921 was 732,265, and the total net amount of increase per week was £185,658, representing 5s. 1d. per head per week.

The table shews the net results of all changes made in the rates of wage, and includes many instances in which the weekly wage was reduced. In 1921 one hundred and thirty-five decreases were recorded. One hundred and five occurred in New South Wales, eight in Victoria, six in Queensland, five in South Australia, eight in Western Australia, and three in Tasmania. The total number of workpeople affected by these changes was 126,970, and the amount of decrease per week was £19,428. The reductions in the rates of wage were brought about by variations of awards by the Court of Industrial Arbitration of New South Wales, which took into consideration the declaration of the 8th October of the Board of Trade appointed under the State Industrial Arbitration Act, that the "living wage" for adult male employees was £4 2s. per week, in lieu of £4 5s. per week previously in force in that State. Agreements between employers and workpeople engaged in glass-working, artificial manure manufacture, and gas-making, providing for automatic adjustment of rates of wage according to the fluctuation in the cost of living figures, were responsible for decreases in Victoria, Queensland, South Australia, and Western Australia. Decreased rates of wage to mining and smelting employees at Wallaroo and Moonta, and at Port Pirie (South Australia), and also at Queenstown (Tasmania), were recorded during the year. The Court of Industrial Appeals in Victoria reduced the rates of wage of grocers and jam-makers, after appeals by the employers against the determinations of the Wages Boards. Other decreases were brought about by the reduction of the number of working hours per week—without a corresponding increase in the hourly rate of wage.

3. Number and Magnitude of Changes in Rates of Wage in the Commonwealth Classified according to Industrial Groups, 1913 to 1921.—*Total Workpeople (Male and Female) affected by Changes.* In the following table particulars are given of the number of changes, the number of persons (males and females) affected, and the total amount of increase per week, classified according to Industrial Groups throughout the Commonwealth during the years 1913 and 1918 to 1921 :—

CHANGES IN RATES OF WAGE IN THE COMMONWEALTH ACCORDING TO INDUSTRIAL GROUPS, 1913 AND 1918 TO 1921.

Particulars.	Industrial Group.							
	I. Wood, Furniture, Timber, etc.	II. Engineering, Metal Works, etc.	III. Food, Drink, Tobacco, etc.	IV. Clothing, Hats, Boots, etc.	V. Books, Printing, etc.	VI. Other Manufacturing.	VII. Building.	VIII. Mines, Quarries, etc.
1913.								
Number of Changes ..	10	20	45	15	11	55	21	17
Number of Persons affected ..	7,975	6,594	17,428	11,727	4,602	17,110	19,237	6,112
Amount of increase per week £	1,569	1,607	4,255	2,062	1,126	3,480	5,696	1,210
1918.								
Number of Changes ..	61	42	93	26	24	78	30	25
Number of Persons affected ..	14,651	31,804	32,411	23,215	8,707	15,160	17,419	14,285
Amount of increase per week £	4,343	10,565	9,025	5,252	1,804	3,944	5,420	2,988
1919.								
Number of Changes ..	39	89	156	31	41	138	42	29
Number of Persons affected ..	13,616	44,133	72,603	26,905	9,335	50,530	19,053	34,501
Amount of increase per week £	4,890	20,381	23,551	11,308	4,449	17,829	8,941	17,434
1920.								
Number of Changes ..	68	123	241	56	83	245	82	61
Number of Persons affected ..	44,732	74,853	81,876	55,345	19,757	71,671	61,552	47,865
Amount of increase per week £	19,015	29,145	41,383	21,271	11,088	31,126	41,059	30,385
1921.								
Number of Changes ..	22	81	105	45	28	156	27	22
Number of Persons affected ..	11,915	58,632	55,555	89,542	12,116	55,766	24,717	6,322
Amount of increase per week £	2,650	17,244	13,658	16,143	4,000	14,666	10,196	2,896

Industrial Group—continued.

Particulars.	Industrial Group.							ALL GROUPS (a)
	IX. Rail and Tram Services.	X. Other Land Transport.	XI. Shipping, etc.	XII. Pastoral, Agricultural, etc.	XIII. Domestic, Hotels, etc.	XIV. Miscellaneous.		
1913.								
Number of Changes ..	16	12	19	3	9	59		312
Number of Persons affected ..	20,046	7,335	1,839	828	6,481	38,818		166,132
Amount of increase per week £	3,219	2,324	543	436	1,922	8,264		37,713
1918.								
Number of Changes ..	38	25	38	6	23	270		779
Number of Persons affected ..	59,625	12,782	1,990	1,717	9,230	118,585		361,581
Amount of increase per week £	10,320	2,185	719	350	2,167	26,178		85,260
1919.								
Number of Changes ..	74	37	59	11	49	373		1,168
Number of Persons affected ..	114,365	20,871	34,294	9,030	25,799	123,856		603,891
Amount of increase per week £	56,872	8,701	18,168	5,739	7,620	50,562		256,445
1920.								
Number of Changes ..	82	52	76	19	55	481		1,724
Number of Persons affected ..	136,854	28,532	16,842	26,580	34,285	326,542		1,027,286
Amount of increase per week £	54,959	11,605	11,871	20,701	12,258	158,842		494,708
1921.								
Number of Changes ..	67	32	44	10	39	294		972
Number of Persons affected ..	127,860	24,885	37,904	1,815	17,904	207,332		732,265
Amount of increase per week £	18,573	2,717	17,988	853	4,339	59,737		185,658

(a) In this table an Industrial Award or Agreement under the Commonwealth Conciliation and Arbitration Act, the Arbitration (Public Service) Act, the Industrial Peace Act, or an Order of the War Precautions Coal Board is counted as one change only, although such Award, Agreement or Order may be operative in more than one State.

4. Changes in Rates of Wage in Male and Female Occupations—Number and Effect of Changes in each State, 1913-1921.—Included in the changes in rates of wage recorded in the tables on page 885 are those which in the whole or part thereof affected female occupations. Particulars in respect to these changes in so far as they relate to the numbers of male and female workers affected, etc., are set out hereunder :—

CHANGES IN RATES OF WAGE.—MALE AND FEMALE OCCUPATIONS.—EFFECT OF CHANGES IN EACH STATE AND TERRITORY, 1913 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust	W. Aust.	Tasmania.	N. Terr.	All States ^a	C'wealth.
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NUMBER OF MALE EMPLOYEES AFFECTED.

1913	83,470	44,692	16,095	3,616	3,036	1,525	152,434
1914	48,773	25,644	19,628	5,624	7,616	4,232	..	390	111,907
1916	225,806	99,667	68,125	39,586	5,669	6,885	249	3,546	449,533
1917	82,601	48,136	63,066	16,844	12,788	4,759	1,143	11,000	240,337
1918	128,728	91,857	59,909	12,889	8,452	3,487	624	616	306,562
1919	253,077	106,389	99,167	32,162	24,185	13,906	1,287	2,025	532,198
1920	385,118	202,972	126,306	66,824	48,088	24,213	703	7,812	862,036
1921	219,813	185,895	90,918	37,062	19,988	13,484	..	21,710	588,870

NET AMOUNT OF INCREASE PER WEEK TO MALE EMPLOYEES.

	£	£	£	£	£	£	£	£	£
1913	20,682	9,317	3,647	1,127	428	512	..	..	35,713
1914	12,158	5,146	5,055	1,941	2,157	797	..	143	28,397
1916	53,395	26,877	39,874	9,774	1,414	1,937	82	1,593	134,946
1917	25,773	11,080	17,106	5,244	3,329	1,878	635	4,800	69,845
1918	29,410	22,574	16,186	3,311	1,889	1,284	273	239	75,166
1919	132,237	38,115	38,200	10,690	9,560	6,560	618	920	236,900
1920	207,403	98,778	63,432	27,498	22,157	13,105	684	6,192	439,249
1921	26,735	68,087	26,649	12,079	10,737	6,119	..	6,891	157,297

AVERAGE INCREASE PER HEAD PER WEEK TO MALE EMPLOYEES.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1913	4 11	4 2	4 6	6 3	2 10	6 9	..	..	4 8
1914	5 0	4 10	5 2	6 11	5 8	3 9	..	7 4	5 1
1916	4 9	5 5	11 8	4 11	5 0	5 8	6 7	9 0	6 0
1917	6 3	5 7	5 5	6 3	5 2	7 11	11 1	8 9	5 10
1918	4 7	4 11	5 5	5 2	4 6	7 4	8 9	7 9	4 11
1919	10 5	7 2	7 8	6 8	7 11	9 5	9 7	9 1	8 11
1920	10 9	9 9	10 1	8 3	9 3	10 10	19 6	15 10	10 2
1921	2 5	7 4	5 10	6 6	10 9	9 1	..	6 4	5 4

NOTE.—For continuation of Table see next page.

(a) Changes recorded in this column are common to all States, as the particulars relating to the number of workpeople affected and the net amount of increase per week in each State were not ascertainable.

CHANGES IN RATES OF WAGE.—MALE AND FEMALE OCCUPATIONS.—
EFFECT OF CHANGES IN EACH STATE AND TERRITORY, 1913 TO
1921—continued.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Terr.	All States. ^a	C'wealth.
1913	6,148	4,562	550	958	..	1,480	..	..	13,698
1914	7,696	4,232	570	..	783	30	..	..	13,311
1916	16,915	20,211	3,954	1,339	179	347	9	..	42,954
1917	18,557	20,136	9,777	3,365	209	529	..	..	52,573
1918	17,671	18,170	14,265	3,350	1,419	144	..	..	55,019
1919	26,954	19,304	17,460	3,215	2,488	2,202	..	70	71,693
1920	69,492	55,239	19,158	9,781	7,401	4,104	..	75	165,250
1921	52,969	52,189	24,804	7,634	2,707	1,299	..	1,793	143,395

NUMBER OF FEMALE EMPLOYEES AFFECTED.

NET AMOUNT OF INCREASE PER WEEK TO FEMALE EMPLOYEES.

	£	£	£	£	£	£	£	£	£
1913	1,107	563	55	152	..	123	..	..	2,000
1914	1,400	542	73	..	266	7	..	..	2,288
1916	3,480	3,689	577	156	26	43	6	..	7,977
1917	3,123	4,049	2,977	826	78	109	..	..	11,162
1918	2,784	2,940	3,513	574	244	39	..	..	10,094
1919	5,405	5,815	5,518	1,299	689	790	..	29	19,545
1920	20,783	20,928	6,316	2,818	3,038	1,488	..	88	55,459
1921	11,636	9,338	4,141	1,330	658	251	..	1,007	28,361

AVERAGE INCREASE PER HEAD PER WEEK TO FEMALE EMPLOYEES.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1913	3 7	2 6	2 0	3 2	..	1 8	..	..	2 11
1914	3 8	2 7	2 7	..	6 9	4 8	..	..	3 5
1915	4 5	3 4	2 10	5 5	4 8	2 8	..	..	4 1
1916	4 1	3 8	2 11	2 4	2 11	2 6	13 4	..	3 9
1917	3 4	4 0	6 1	4 11	7 6	4 1	..	..	4 3
1918	3 2	3 3	4 11	3 5	3 5	5 5	..	..	3 8
1919	4 0	6 0	6 4	8 1	5 6	7 2	..	8 3	5 5
1920	6 0	7 7	6 7	5 9	8 3	7 3	..	23 6	6 9
1921	4 5	3 7	3 4	3 6	4 10	3 10	..	11 3	3 11

(a) See footnote on previous page.

5. Methods by which Changes were Effected.—(i) *Changes in Rates of Wage and Methods by which Effected—Commonwealth, 1920 and 1921.* In the following table particulars are given for the Commonwealth of the number of changes in rates of wage, the number of workpeople affected, and the total net amount of increase to the weekly wage distribution brought about either without, or after, stoppage of work, during the years 1920 and 1921 respectively, as a result of the application of one or other of the methods set out in the tables :—

CHANGES IN RATES OF WAGE.—METHODS BY WHICH EFFECTED, 1920 AND 1921.

Methods by which Changes were Effected.	Without Stoppage of Work.			After Stoppage of Work.			All Changes.		
	No. of Changes.	No. of Work- people Affected.	Total Net Amount of Increase per Week.	No. of Changes.	No. of Work- people Affected.	Total Net Amount of Increase per Week.	No. of Changes.	No. of Work- people Affected.	Total Net Amount of Increase per Week.
1920.									
By voluntary action of employers	28	15,193	£ 4,597	..	..	£ ..	28	15,193	£ 4,597
By direct negotiations	260	159,941	79,683	73	10,032	5,786	333	169,973	85,469
By negotiations, intervention or assistance of third party(a)	12	60,785	36,251	11	3,906	2,190	23	64,691	38,441
By award of Court under Com- monwealth Act(a)	63	75,020	24,812	1	28	56	64	75,048	24,807
By agreement registered under Commonwealth Act(a)	162	26,533	11,540	1	200	68	163	26,733	11,608
By award or determination under State Acts	971	645,927	314,244	7	2,156	1,484	978	648,083	315,728
By agreement registered under State Acts	133	27,300	13,899	2	265	159	135	27,565	14,058
Total(a)	1,629	1,010,699	485,026	95	16,587	9,682	1,724	1,027,286	494,708
1921.									
By voluntary action of employers	4	2,000	565	..	..	..	4	2,000	565
By direct negotiations	144	77,070	20,604	4	140	107	148	77,210	20,711
By negotiations, intervention or assistance of third party(a)	17	73,504	26,086	1	200	200	18	73,704	26,286
By award of Court under Com- monwealth Act(a)	66	139,773	44,360	..	..	..	66	139,773	44,360
By agreement registered under Commonwealth Act(a)	55	24,166	12,209	..	..	..	55	24,166	12,209
By award or determination under State Acts	593	390,765	76,482	1	450	332	594	391,215	76,814
By agreement registered under State Acts	87	24,197	4,713	..	..	..	87	24,197	4,713
Total(a)	966	731,475	185,019	6	790	639	972	732,265	185,658

(a) In this section of the table an Award or Agreement under the Commonwealth Conciliation and Arbitration Act, the Arbitration (Public Service) Act, the Industrial Peace Act, or an Order of the War Precautions Coal Board is counted as one change only, although such Award, Agreement, or Order may be operative in more than one State. (b) Decrease.

The total number of changes recorded during the year 1921 was 972, of which 594 or 61 per cent. of the total number were brought about by award or determination under State Industrial Acts. The number of workpeople who were affected by these changes was 391,215, and the total amount of increase per week in wages was £76,814. Of these 594 changes, 238 occurred in New South Wales. 85 in Victoria, 182 in Queensland, 57 in South Australia, 16 in Western Australia, and 16 in Tasmania. The number of changes in rates of wage which were recorded as having been made by awards or variations of awards under the provisions of the Commonwealth Conciliation and Arbitration Act was 66, as compared with 64 during the previous year. Direct negotiations between representatives of employers and employees brought about 148 changes in rates of wage during the year. A large number of industrial agreements were filed under the provisions of the Commonwealth and State Acts during the twelve months under review. Six changes in rates of wage were arranged after stoppages of work. The number of workpeople affected by these changes was 790.

(ii) *Changes in Rates of Wage and Methods by which Effected—Commonwealth, 1913–1921.* Comparative particulars are contained in the following table of the total number and effect of all changes in rates of wage brought about throughout the Commonwealth during the years indicated, as a result of the application of one or other of the specified methods:—

CHANGES IN RATES OF WAGE, CLASSIFIED ACCORDING TO METHODS BY WHICH EFFECTED—COMMONWEALTH, 1913 AND 1918 TO 1921.

Particulars.	By Voluntary Action of Employers.	By Direct Negotiations.	By Negotiations, Intervention or Assistance of Third Party.	By Award of Court under C'wealth Act.	By Agreement Registered under C'wealth Act.	By Award or Determination under State Act.	By Agreement Registered under State Act.	TOTAL (a)
1913.								
Number of Changes ..	2	30	4	3	24	213	36	312
Number of Workpeople affected ..	12,011	4,336	101	4,487	3,387	138,702	5,108	166,132
Amount of Increase per week £	1,543	1,120	20	1,679	831	31,328	1,192	37,713
1918.								
Number of Changes ..	14	132	3	39	142	354	95	779
Number of Workpeople affected ..	12,916	43,428	591	20,502	6,764	270,777	6,603	361,581
Amount of Increase per week £	2,396	9,473	334	4,481	1,683	64,642	2,251	85,260
1919.								
Number of Changes ..	36	233	29	42	141	582	100	1,168
Number of Workpeople affected ..	10,285	84,535	45,049	67,741	27,244	337,625	31,412	603,891
Amount of Increase per week £	4,373	28,937	24,233	29,584	10,017	148,632	10,669	256,445
1920.								
Number of Changes ..	28	333	23	64	163	978	135	1,724
Number of Workpeople affected ..	15,193	169,973	64,691	75,043	26,733	648,083	27,565	1,027,236
Amount of Increase per week £	4,597	85,469	38,441	24,807	11,608	315,728	14,058	494,708
1921.								
Number of Changes ..	4	143	18	66	55	594	87	972
Number of Workpeople affected ..	2,000	77,210	73,704	139,773	24,166	391,215	24,197	732,265
Amount of Increase per week £	565	20,711	26,286	44,360	12,209	76,814	4,713	185,658

(a) See footnote to table on page 888.

It will be seen from the foregoing table that the greatest number of changes throughout the period under review was effected through the instrumentalities of the State Acts, though in relation to the total business the activities of the State organisations shew a decline from 80 per cent. of all changes in 1913 to 70 per cent. in 1921, while the changes made under the Commonwealth Acts have increased from 8.7 per cent. to 12.4 per cent. It is interesting to observe the very marked extent to which "direct negotiation" between parties has been resorted to in the later years. In 1913, only 30 changes, or less than 10 per cent. of the total, affecting only 2.6 per cent. of all persons concerned in the changes of that year, were brought about by direct negotiations, whereas in 1921, 148 changes (15 per cent.), affecting 77,210 persons, or 11 per cent. of the whole, resulted from this agency. It must be mentioned that, so far as possible, the effect of awards or agreements is recorded in the figures for the year in which such awards or agreements are made and filed. In certain cases, however, the awards or agreements are made retrospective as to the date on which the increased rate of wage has to be paid, while in others the particulars as to the number of workpeople affected and the effect of the change are difficult to ascertain.

§ 9. Industrial Disputes.

1. General.—Information with regard to the collection of particulars and methods of tabulation of industrial disputes involving stoppage of work has appeared in previous issues of the Year Book, and is also given in the Annual Reports of the Labour and Industrial Branch of this Bureau.

In the following tabulations particulars are included only with respect to the industrial disputes which commenced during any calendar year.* This course requires the elimination of such data as relate to disputes which commenced during an earlier period, but which remained unsettled during some portion of the succeeding year. On the other hand it necessitates the inclusion of the number of working days and wages lost during the following year in connexion with the disputes commenced during the calendar year to which the statistics relate.

* Any tabulations as to causes, duration, etc., based on disputes which were in existence in any given year, and not on those which commenced in that year, would inevitably result in confusion, seeing that particulars relating to the same dispute would probably occur in two successive years.

2. Comparative Summary of Disputes (involving Stoppage of Work), 1913 to 1921.—

The systematic collection of information as to industrial disputes (causing a stoppage of work) throughout the Commonwealth was first undertaken as from the 1st January, 1913, and particulars concerning disputes occurring during the year 1913 were published in Labour Report No. 5. The following table gives particulars of the number of industrial disputes which began in various years from 1913 to 1921, together with the number of workpeople involved, the number of working days lost, and the total estimated loss in wages in each State and Territory comprising the Commonwealth :—

INDUSTRIAL DISPUTES IN EACH STATE AND TERRITORY.—COMPARATIVE PARTICULARS FOR 1913 AND 1917 TO 1921.

State or Territory.	Year.	No. of Disputes.	Establishments Involved in Disputes.	No. of Workpeople Involved.			No of Working Days Lost.	Total Estimated Loss in Wages.
				Directly	Indirectly.	Total.		
								£
New South Wales ..	1913	134	466	25,647	14,364	40,011	468,957	216,368
	1917	296	918	118,515	15,508	134,023	3,308,869	1,929,405
	1918	138	182	24,417	8,624	33,041	181,639	112,894
	1919	267	678	64,956	35,040	99,996	4,324,686	2,856,259
	1920	349	650	68,033	22,349	90,382	587,156	432,988
Victoria ..	1921	535	567	108,573	29,921	138,494	547,838	493,267
	1913	29	63	4,151	2,026	6,177	85,212	35,744
	1917	52	636	15,976	2,114	18,090	760,410	378,946
	1918	33	190	4,235	1,513	5,748	165,020	99,346
	1919	62	372	15,169	7,437	22,606	733,333	392,796
Queensland ..	1920	53	809	15,274	24,534	39,808	783,286	465,244
	1921	20	118	4,119	2,161	6,280	109,595	69,629
	1913	17	20	1,781	225	2,006	55,288	28,374
	1917	39	202	12,074	971	13,045	317,699	178,125
	1918	84	696	8,803	1,875	10,678	183,883	131,142
South Australia ..	1919	69	295	9,078	6,336	15,414	586,661	327,537
	1920	55	71	3,775	2,033	5,808	68,298	44,943
	1921	33	97	3,367	1,512	4,879	95,560	69,793
	1913	9	13	272	16	288	2,412	1,029
	1917	24	44	3,958	146	4,104	57,446	30,806
Western Australia ..	1918	17	25	1,576	429	2,005	18,276	10,515
	1919	32	75	4,437	3,409	7,846	238,378	127,303
	1920	40	126	4,732	1,067	5,799	232,402	140,326
	1921	19	45	2,158	1,002	3,160	57,038	37,315
	1913	9	324	967	..	967	6,772	3,515
Tasmania ..	1917	23	128	2,401	547	2,948	102,078	53,004
	1918	22	56	3,368	1,435	4,803	31,145	17,792
	1919	20	157	5,516	4,460	9,976	359,987	213,867
	1920	45	434	9,085	2,918	12,013	146,640	108,055
	1921	12	56	1,906	10,167	12,063	145,103	86,038
Fed. Cap. Territory ..	1913	8	30	444	20	464	987	434
	1917	8	11	1,062	623	1,685	52,541	24,502
	1918	1	1	42	..	42	462	250
	1919	5	127	1,098	588	1,686	63,271	32,738
	1920	12	14	1,610	146	1,756	54,283	32,160
Northern Territory ..	1921	5	5	75	150	225	1,483	986
	1913	1	1	100	100	200	1,400	600
	1917	..	..	..	..	..	..	..
	1920	1	4	131	39	170	2,500	1,675
	1917	2	2	75	..	75	615	520
Commonwealth ..	1918	3	4	112	10	122	428	395
	1919	5	9	46	21	67	1,910	1,436
	1920	..	..	..	..	..	..	..
	1913	208	921	33,493	16,790	50,283	623,528	287,739
	1917	444	1,941	154,061	19,909	173,970	4,599,658	2,594,808
Commonwealth ..	1918	208	1,154	42,553	13,886	56,439	580,853	372,334
	1919	460	1,713	100,300	57,291	157,591	6,308,226	3,951,936
	1920	554	2,104	102,519	53,047	155,566	1,872,065	1,223,716
	1921	624	888	120,198	44,903	165,101	956,617	757,028

It may be seen from the foregoing table that industrial disputes throughout the Commonwealth were most frequent during the year 1920. The number of workpeople involved in disputes during 1916 and 1917 increased to an enormous extent, while the losses in working days and wages were considerably in excess of such losses during any previous yearly period. The figures for 1917 are swollen by the effects of the dispute at the Government Railway Workshops in New South Wales in connexion with the introduction of the "card system." The dislocation of industry due to this dispute is the most extensive which has been recorded by the Bureau since the systematic

collection of particulars was undertaken at the beginning of the year 1913. After careful consideration of the data it was ascertained that 79 disputes throughout the various States were directly associated with the action of the employees at the Government Railway Workshops. The originating dispute, which commenced on the 2nd August, 1917, when the employees at the workshops ceased work as a protest against the introduction of a time-card system, rapidly extended to other industries throughout the Commonwealth. Railway employees in other branches of the service, coal and metalliferous miners, seamen, waterside workers, and others left work, mostly in sympathy with the railway men, while other workers, including carters, storemen, and artificial manure makers, refused to handle "black" goods and coal. Of the 79 disputes, which were the outcome of the original stoppage, 52 occurred in New South Wales; 18 in Victoria; 3 in South Australia; and 2 in each of the remaining States. The total number of workpeople involved in these dislocations was 97,507, the loss in working days was 3,982,250, with a consequent estimated loss in wages of £2,233,000. In addition a large number of employees in various industries, though not directly connected with the dispute, were thrown out of work by the restrictions placed upon the use of coal, gas and electricity.

The figures for 1914 and 1916 were inflated by disputes in the coal-mining industry. In the earlier year, there was a protracted dispute in New South Wales through the refusal of the miners to work the afternoon shift. The estimated loss incurred was 523,000 working days, representing £259,000 in wages. In 1916 the coal-mining employees in New South Wales, Victoria, Queensland, and Tasmania ceased work over the question of the "eight hours bank to bank." The loss on this occasion was 409,000 working days, equivalent to £240,850 in wages.

Three serious dislocations occurred during the year 1919. The stoppage of work at Broken Hill, in which metalliferous miners and others were involved, was the most prolonged dispute which has been recorded by this Bureau. The mines closed down during May, 1919, and work was not resumed until November, 1920. Over 7,000 workpeople at Broken Hill were thrown out of work, and it is estimated that the loss in wages to workpeople at the mines at Broken Hill and at the smelters, Port Pirie, exceeded £2,500,000. Seamen and marine engineers were also involved in protracted disputes, which caused heavy losses of working days and wages during the year. Detailed particulars of these important disputes have been published in Labour Reports, Nos. 10 and 11. The number of disputes which occurred during 1921, while greater than for any of the previous years for which information is given, affected a lesser number of workpeople and involved less loss in wages than in either 1919 or 1920. Information with regard to the disputes occurring during 1921 is given in Labour Report No. 12, pp. 148-151.

In regard to extensive dislocations of industry which occurred prior to the institution of systematic inquiries by the Bureau, efforts were made to obtain statistical data relating to the shearers' disputes in 1890, 1891, and 1894, and also concerning the number of workpeople involved and the losses caused by the maritime dispute in the early part of 1891, but precise information was not obtainable.

The proportion of disputes in each State expressed as a percentage on the total for the Commonwealth is as follows :—

PROPORTION PER CENT. OF DISPUTES IN THE LARGER STATES, 1914 TO 1921.

State.	1914.	1916.	1917.	1918.	1919.	1920.	1921.
New South Wales ..	70	66	69	46	58	63	85
Victoria	13	11	12	11	13	10	3
Queensland	5	13	9	28	15	10	5
Other States and Territories	12	10	10	15	14	17	7
Commonwealth ..	100	100	100	100	100	100	100

Although the number of disputes in 1919 was less than that in 1916, and the number of workpeople involved was less than in either of the years 1916 and 1917, yet, measured by the loss of time and wages, the disruption to industry which occurred during 1919 was the most serious which the Commonwealth has experienced since records of such matters were instituted in 1913. Prior to 1919 the most serious loss in wages was incurred in 1917, when it amounted to £2,594,808, a sum outstanding in magnitude

as compared with other years. In 1919, however, this amount was exceeded by £1,357,128, the estimated loss in wages being £3,951,936, representing 6,308,226 working days. During the year 1920 particulars concerning 554 dislocations of work were recorded. This number is considerably higher than that for any previous year. The losses in working days (1,872,065) and in wages (£1,223,716) were, however, lower than those caused by disputes during 1917 and 1919. The more important of the disputes which contributed to the losses during 1920 were the dislocations of work in which were involved marine stewards on inter-State vessels; factory engine-drivers and firemen, Melbourne; gas workers, Melbourne; brown-coal miners, Morwell; ironstone quarrymen and others, Iron Knob and Whyalla; and State civil servants, Western Australia. During 1921 the principal disputes occurred in the coal-mining industry, shipping, building, and sugar-cane cutting.

It is, of course, obvious that the mere number of disputes cannot by itself be accepted as a proper basis of comparison, nor does the number of workpeople afford a satisfactory basis. A better idea as to the significance and effect of industrial disputes may be obtained from the number of working days lost and the estimated loss in wages.

The position which New South Wales occupies in comparison with the other States is almost entirely due to the prevalence of disputes in connexion with coal mining. Apart from these stoppages the number of disputes in all other industries, whilst still in excess of that for each of the other States, does not compare unfavourably when the number of workpeople in each State is taken into consideration.

3. Number and Magnitude of Industrial Disputes in the Commonwealth, Classified according to Industrial Groups.—Comparative Particulars for 1920 and 1921.—The following table gives particulars of disputes in the Commonwealth during the years 1920 and 1921, classified according to industrial groups. The system of classification selected is similar to that adopted in connexion with labour organisations, unemployment, rates of wage, etc. (see Labour Report No. 11, page 9).

INDUSTRIAL DISPUTES IN THE COMMONWEALTH, CLASSIFIED ACCORDING TO INDUSTRIAL GROUPS, 1920 AND 1921.

Industrial Group.	No. of Disputes.		No. of Work-people Involved in Disputes.		No. of Working Days Lost.		Total Estimated Loss in Wages.	
	1920.	1921.	1920.	1921.	1920.	1921.	1920.	1921.
I. Wood, Furniture, Timber, etc.	13	4	914	94	9,654	3,264	£ 6,167	£ 2,679
II. Engineering, Metal Works, etc.	14	4	7,312	108	73,108	7,127	44,702	5,249
III. Food, Drink, etc.	24	14	3,170	2,171	24,734	28,633	15,207	24,912
IV. Clothing, Hats, Boots, etc.	2	2	271	250	6,088	387	3,405	171
V. Books, Printing, etc.	5	..	2,083	..	114,785	..	64,810	..
VI. Other Manufacturing	31	6	7,342	540	109,709	6,187	65,965	5,068
VII. Building	17	9	6,527	1,421	99,599	36,406	87,501	24,719
VIII. Mines, Quarries, etc.	316	500	81,043	133,547	495,981	366,120	407,515	384,138
IX. Rail and Tramway Services	18	17	1,345	9,994	9,884	106,354	7,231	56,724
X. Other Land Transport	1	..	2	..	10	..	6	..
XI. Shipping, Wharf Labour	56	29	13,696	12,700	373,329	342,649	225,572	208,947
XII. Pastoral, Agricultural, etc.	11	12	369	822	3,157	8,711	2,824	7,844
XIII. Domestic, Hotel, etc.	6	2	556	37	4,419	4,880	1,449	2,010
XIV. Miscellaneous	40	16	30,936	3,419	547,608	45,899	311,362	34,567
Commonwealth, All Groups	554	624	155,566	165,101	1,872,065	956,617	1,223,716	757,028

Attention has frequently been drawn to the preponderating influence exercised by disputes in the coal-mining industry in New South Wales on the total number of industrial disputes. In making any comparison as to the number of disputes in this industrial class in each State, it should be observed that while the number of workers engaged in the mining industry is very much larger in New South Wales than in any of the other States, nevertheless the total number of disputes recorded in that State is considerably greater than in any other State. Of the 3,167 disputes recorded in the Commonwealth for the eight years 1913–20, 1,615 or 51.0 per cent. were connected with the industries included in Group VIII., Mines, Quarries, etc.

4. Duration of Industrial Disputes in the Commonwealth, 1921.—In the following table particulars are given with respect to the number of disputes, workpeople directly and indirectly involved, working days lost, and estimated amount of loss in

wages respectively, consequent on the cessations of work which were recorded for the Commonwealth during the year 1921, classified under the adopted limits of duration:—

DURATION OF INDUSTRIAL DISPUTES IN THE COMMONWEALTH, 1921.

Limits of Duration.	No. of Disputes.	No. of Workpeople Involved.			Number of Working Days Lost.	Total Estimated Loss in Wages.
		Directly.	Indirectly.	Total.		
1 day and less	332	70,437	15,913	86,350	85,841	£ 95,235
2 days and more than 1 day ..	90	16,778	5,719	22,497	44,441	48,056
3 days and more than 2 days ..	60	10,082	2,397	12,479	37,093	37,418
Over 3 days and less than 1 week (6 days)	27	3,365	1,361	4,726	20,879	21,537
1 week and less than 2 weeks ..	54	8,904	8,519	17,423	161,379	113,856
2 weeks and less than 4 weeks ..	34	3,891	2,700	6,591	106,779	92,324
4 weeks and less than 8 weeks ..	18	5,504	8,124	13,628	386,746	253,144
8 weeks and over	9	1,237	170	1,407	113,459	95,458
Total	624	120,198	44,903	165,101	956,617	757,028

NOTE.—Similar figures for the years 1913 to 1920 will be found in previous issues of the Year Book and in the Labour Reports.

5. Industrial Disputes, Classified as to Causes, Commonwealth, 1914–1921.—The following table shows the number of disputes, number of workpeople involved, and the total number of working days lost in disputes which commenced during the years 1914 to 1921, classified according to principal cause:—

CAUSES OF INDUSTRIAL DISPUTES IN THE COMMONWEALTH, 1914 TO 1921.

Causes of Disputes.	1914.	1916.	1917.	1918.	1919.	1920.	1921.
NUMBER OF DISPUTES.							
1. Wages—							
(a) For increase ..	50	125	53	54	99	94	19
(b) Against decrease ..	3	7	1	4	2	..	2
(c) Other wage questions ..	62	96	69	69	100	106	161
2. Hours of Labour—							
(a) For reduction ..	1	16	2	1	4	16	12
(b) Other disputes re hours ..	13	5	8	11	5	9	16
3. Trades Unionism—							
(a) Against employment of non-unionists ..	13	14	26	7	19	20	5
(b) Other union questions ..	11	8	32	19	29	27	22
4. Employment of particular Classes or Persons ..	83	83	90	92	118	135	169
5. Working Conditions ..	72	90	81	34	54	106	162
6. Sympathetic	3	20	57	1	6	2	13
7. Other Causes	21	44	25	6	24	39	43
Total	337	508	444	298	460	554	624

NUMBER OF WORKPEOPLE INVOLVED.

1. Wages—							
(a) For increase ..	7,362	30,193	7,135	7,095	58,532	41,748	2,659
(b) Against decrease ..	534	1,051	21	57	667	..	850
(c) Other wage questions ..	15,243	23,507	18,894	12,737	26,222	21,139	52,704
2. Hours of Labour—							
(a) For reduction ..	220	24,481	1,004	26	578	20,758	2,313
(b) Other disputes re hours ..	3,237	579	2,576	4,214	961	2,137	2,113
3. Trades Unionism—							
(a) Against employment of non-unionists ..	5,807	1,178	6,182	710	9,001	2,752	1,353
(b) Other union questions ..	1,593	1,167	17,320	6,673	17,509	7,534	6,607
4. Employment of particular Classes or Persons ..	14,863	15,910	15,445	14,576	21,488	26,163	45,408
5. Working Conditions ..	17,053	20,516	19,021	7,757	11,582	21,204	35,790
6. Sympathetic	675	4,191	76,076	200	3,080	1,397	3,251
7. Other Causes	4,462	47,910	10,296	2,394	7,971	10,734	12,053
Total	71,049	170,683	178,970	56,439	157,591	155,566	165,101

**CAUSES OF INDUSTRIAL DISPUTES IN THE COMMONWEALTH,
1914 TO 1921—continued.**

Causes of Disputes.	1914.	1916.	1917.	1918.	1919.	1920.	1921.
NUMBER OF WORKING DAYS LOST.							
1. Wages—							
(a) For increase ..	99,451	592,625	56,083	198,323	5,403,581	793,935	13,731
(b) Against decrease ..	32,965	6,192	42	316	10,013		25,700
(c) Other wage questions	169,847	143,248	225,080	97,561	96,118	101,219	192,858
2. Hours of Labour—							
(a) For reduction ..	9,240	583,052	78,016	312	10,372	534,458	13,315
(b) Other disputes re hours	16,855	1,598	62,560	20,551	15,760	37,486	13,260
3. Trades Unionism—							
(a) Against employment of non-unionists ..	92,720	48,881	87,600	21,894	279,804	24,900	17,890
(b) Other union questions	6,968	10,276	572,949	24,341	329,205	21,999	117,199
4. Employment of particular Classes or Persons ..	64,367	70,452	47,297	113,466	87,225	129,215	431,130
5. Working Conditions ..	584,289	81,511	211,971	93,468	32,029	128,967	69,732
6. Sympathetic ..	2,125	75,447	3,239,798	7,200	21,050	72,940	6,150
7. Other Causes ..	11,568	65,648	18,262	3,421	23,069	26,946	55,652
Total ..	1,090,395	1,678,930	4,599,658	580,853	6,308,221	1,820,665	956,617

It will be observed from the above table that the main causes of industrial disputes are "Wage" questions, "Working Conditions," and "Employment of Particular Classes or Persons." In each of the eight years, 1914-1921, the number of dislocations concerning wages exceeded those caused by any other question, having varied between a minimum proportion of 28 per cent. in 1917 and a maximum of 45 per cent. in 1916. The proportion attributed to this cause in 1920 was 36 per cent. The majority of the disputes classified under the heading, "Employment of Particular Classes or Persons," are stoppages of work for the purpose of protesting against the dismissal of certain employees, who, in the opinion of their fellow-workers, have been unfairly treated or victimised. This class of dispute occurs very frequently in the coal-mining industry. The number of disputes over "Trade Union" questions and "Hours of Labour" has represented a fairly uniform proportion of the total number of disputes during the years under review. "Sympathetic" disputes were numerous during the years 1916 and 1917. The figures for the latter year were abnormal in comparison with the other periods. It may be mentioned, however, that the disputes which arose during that year in connection with the "time-card system" dispute were responsible for the increase in the number.

6. Results of Industrial Disputes, Commonwealth, 1913-21.—The following table shows the number of disputes, number of workpeople involved, and the number of working days lost in disputes throughout the Commonwealth during the nine years 1913-21, classified according to results:—

**INDUSTRIAL DISPUTES CLASSIFIED ACCORDING TO RESULTS,
COMMONWEALTH, 1913 TO 1921.**

Year.	No. of Disputes.				Number of Workpeople Involved in Disputes.				Total Number of Working Days Lost by Disputes.			
	In Favour of Workpeople.	In Favour of Employer.	Compromise.	Indefinite.	In Favour of Workpeople.	In favour of Employer.	Compromise.	Indefinite.	In Favour of Workpeople.	In Favour of Employer.	Compromise.	Indefinite.
1913	67	64	66	11	10,914	12,211	24,826	2,332	59,823	104,654	433,014	26,037
1914	118	98	110	11	21,224	18,242	30,396	1,187	129,995	119,819	829,265	11,316
1915	190	78	68	22	44,140	15,327	14,860	6,965	245,625	155,659	151,544	30,397
1916	223	178	84	23	70,588	36,670	23,296	40,129	886,010	253,084	476,302	63,534
1917	147	188	100	9	24,331	119,589	22,310	7,740	103,267	4,201,981	285,103	9,307
1918	92	100	93	13	13,780	15,998	23,739	2,922	101,207	177,223	280,045	22,378
1919	154	157	140	9	54,810	43,140	55,445	4,196	2,398,252	406,361	3,483,571	20,042
1920	183	199	168	4	30,399	61,947	62,811	409	180,345	911,156	777,175	3,389
1921	126	274	216	8	25,244	63,380	73,887	2,590	76,381	162,331	714,501	3,404

It will be seen from the above table that, during the years 1913, 1914, and 1916 the disputes resulting in favour of workpeople exceeded those resulting in favour of employers. During 1917, 1918, 1919, 1920, and 1921, however, the position was reversed. A considerable number of disputes in each year resulted in a compromise, while certain disputes resulted in such a manner that they could not be definitely classed as in favour of either party.

7. Methods of Settlement of Industrial Disputes, Commonwealth, 1914-21.—The following tables show the number of disputes, number of workpeople involved, and number of working days lost in industrial disputes during the seven years 1914-21, classified for the Commonwealth according to the adopted schedule of methods of settlement:—

METHODS OF SETTLEMENT OF INDUSTRIAL DISPUTES, COMMONWEALTH, 1914 TO 1921.

Methods of Settlement.	1914.	1916.	1917.	1918.	1919.	1920.	1921.
NUMBER OF DISPUTES.							
Negotiations—							
Direct between employers and employees or their representatives ..	247	319	234	171	291	380	412
By intervention or assistance of distinctive third party—not under Commonwealth or State Industrial Act	11	34	38	21	35	25	65
Under State Industrial Acts—							
By intervention, assistance, or compulsory conference	7	9	12	20	33	33	18
By reference to Board or Court ..	17	10	13	14	5	8	4
Under Commonwealth Conciliation and Arbitration Act—							
By intervention, assistance, or compulsory conference	5	6	3	8	9	8	11
By Filling Places of Workpeople on Strike or Locked Out	16	18	36	26	22	22	10
By Closing-down Establishment Permanently	4	6	4	8	7	4	2
By other Methods	30	106	104	30	58	74	102
Total	337	508	444	298	460	554	624

NUMBER OF WORKPEOPLE INVOLVED.

Negotiations—							
Direct between employers and employees or their representatives ..	43,204	68,841	49,512	34,680	76,070	101,404	93,912
By intervention or assistance of distinctive third party—not under Commonwealth or State Industrial Act	8,054	32,043	23,338	4,155	47,849	6,278	20,775
Under State Industrial Acts—							
By intervention, assistance, or compulsory conference	770	2,117	6,295	2,958	6,926	9,312	11,229
By reference to Board or Court ..	7,308	2,291	2,779	3,392	1,380	1,711	1,083
Under Commonwealth Conciliation and Arbitration Act—							
By intervention, assistance, or compulsory conference	205	1,110	1,490	3,042	1,997	766	12,037
By Filling Places of Workpeople on Strike or Locked Out	629	413	17,780	1,933	2,202	2,141	334
By Closing-down Establishment Permanently	86	150	434	538	401	182	53
By other Methods	5,793	63,718	72,342	5,741	20,766	33,772	25,678
Total	71,049	170,683	173,970	56,439	157,591	155,566	165,101

**METHODS OF SETTLEMENT OF INDUSTRIAL DISPUTES,
COMMONWEALTH, 1914 TO 1921—continued.**

Methods of Settlement.	1914.	1916.	1917.	1918.	1919.	1920.	1921.
NUMBER OF WORKING DAYS LOST.							
Negotiations—							
Direct between employers and employees or their representatives	803,799	563,828	551,484	222,846	632,269	827,985	245,765
By intervention or assistance of distinctive third party—not under Commonwealth or State Industrial Act	128,231	812,763	863,896	37,444	5,379,655	217,916	156,076
Under State Industrial Acts—							
By intervention, assistance, or compulsory conference	4,256	31,696	159,799	57,559	94,557	69,436	136,735
By reference to Board or Court	120,685	48,022	43,352	151,472	8,460	19,236	22,752
Under Commonwealth Conciliation and Arbitration Act—							
By intervention, assistance, or compulsory conference	1,421	20,697	33,896	23,289	74,018	34,205	327,048
By Filling Places of Workpeople on Strike or Locked Out	4,402	9,060	908,596	35,298	46,029	160,562	3,542
By Closing-down Establishment Permanently	3,646	2,776	11,392	4,270	5,737	12,919	538
By other Methods	23,955	190,088	2,022,743	48,675	67,501	529,806	64,161
Total	1,090,395	1,678,930	4,599,658	580,853	6,308,226	1,872,065	956,617

In the above tables the methods of settlement of all disputes recorded during the past seven years are set out in comparative form. In all years it will be observed that direct negotiations between the employers and employees settled the majority of the disputes. The proportion of disputes so settled ranges between a minimum of 53 per cent. in 1917 and a maximum of 76 per cent. in 1921; in 1920 the proportion was 69 per cent., and in 1921 the proportion was 76 per cent. The numbers of dislocations which have been settled by compulsory conferences or the intervention and assistance of officials under State or Commonwealth Arbitration Acts have slightly decreased during the period under review. In connexion with the comparatively large numbers of disputes which are classified as having been settled "By other methods," it must be mentioned that a large number of stoppages of work occur each year, principally at the collieries, without any cause for such stoppages being brought officially under the notice of the employers or their representatives. Such stoppages usually last for one day, and work is resumed without any negotiations for a settlement of the trouble which caused the stoppage.

8. Industrial Disputes, Commonwealth.—Number and Magnitude during Calendar Years 1913 to 1921.—In the following table particulars are given of the number of industrial disputes, the number of workpeople involved, and the losses in working days and wages caused by disputes during each calendar year 1913 to 1921, classified according to industrial groups:—

**INDUSTRIAL DISPUTES, COMMONWEALTH.—NUMBER AND MAGNITUDE
ACCORDING TO INDUSTRIAL GROUPS DURING EACH CALENDAR YEAR
1913-1921.**

Calendar Year.	Manu- facturing. (Groups I. to VI.)	Building. (Group VII.)	Mining. (Group VIII.)	Transport, Land and Sea. (Groups IX. to XI.)	Miscel- laneous. (Groups XII. to XIV.)	ALL GROUPS.
NUMBER OF DISPUTES.						
1913 ..	37	10	103	36	22	208
1914 ..	61	16	186	40	34	337
1915 ..	67	8	204	54	25	358
1916 ..	99	15	240	85	69	508
1917 ..	104	6	200	77	57	444
1918 ..	77	11	135	31	44	298
1919 ..	94	12	231	67	56	460
1920 ..	89	17	316	75	57	554
1921 ..	30	9	509	46	30	624
1913 to 1921 ..	658	104	2,124	511	394	3,791

INDUSTRIAL DISPUTES, COMMONWEALTH.—NUMBER AND MAGNITUDE
ACCORDING TO INDUSTRIAL GROUPS DURING EACH CALENDAR
YEAR 1913-1921—*continued.*

Calendar Year.	Manu- facturing. (Groups I. to VI.)	Building. (Group VII.)	Mining. (Group VIII.)	Transport, Land and Sea. (Groups IX. to XI.)	Miscel- laneous. (Groups XII. to XIV.)	ALL GROUPS.
NUMBER OF WORKPEOPLE INVOLVED.						
1913	5,175	232	33,537	9,049	2,290	50,283
1914	13,017	4,321	48,785	3,256	1,670	71,049
1915	15,180	301	54,315	8,550	2,946	81,292
1916	15,482	751	95,512	9,366	49,572	170,683
1917	32,058	403	69,519	60,975	11,015	173,970
1918	10,472	685	35,149	6,507	3,626	56,439
1919	19,550	2,810	86,607	36,386	12,238	157,591
1920	21,092	6,527	81,043	15,043	31,861	155,566
1921	3,161	1,421	133,547	22,694	4,278	165,101
1913 to 1921 ..	135,187	17,451	638,014	171,826	119,496	1,081,974

NUMBER OF WORKING DAYS LOST.

1913	61,384	2,303	389,854	121,034	47,960	622,535
1914	195,838	140,881	582,967	56,186	17,281	993,153
1915	128,719	801	460,801	59,286	33,353	682,960
1916	339,530	23,913	961,775	104,217	215,318	1,644,753
1917	845,557	8,084	1,317,600	2,374,474	143,601	4,689,316
1918	217,425	3,602	215,573	38,922	64,071	539,593
1919	272,405	124,003	1,826,694	1,898,900	181,736	4,303,738
1920	367,296	103,373	1,944,038	626,826	545,734	3,587,267
1921	47,385	36,406	467,867	666,517	68,010	1,286,185
1913 to 1921 ..	2,475,539	443,366	8,167,169	5,946,362	1,317,064	18,349,500

ESTIMATED LOSS IN WAGES.

	£	£	£	£	£	£
1913	26,703	1,171	182,724	61,005	16,498	288,101
1914	96,461	72,735	293,722	30,178	7,379	500,475
1915	58,519	462	244,943	32,408	13,810	350,142
1916	177,361	13,107	587,163	51,532	115,635	944,798
1917	467,292	4,592	937,308	1,158,079	74,464	2,641,735
1918	131,811	2,235	146,676	21,298	43,114	345,134
1919	167,502	73,643	1,280,265	977,494	119,924	2,618,828
1920	215,057	70,006	1,418,193	357,786	309,345	2,370,387
1921	39,416	24,719	459,450	397,169	49,721	970,475
1913 to 1921 ..	1,380,122	262,670	5,550,444	3,086,949	749,890	11,030,075

§ 10. Retail Prices, House Rents, and Cost of Living.

1. **Introduction.**—In Labour Report No. 1, issued in December, 1912, the results of certain investigations into the subjects of Prices, Price-Indexes and Cost of Living in past years were published, and some account was given of the methods employed for the collection of the data and of the technique adopted in the computation of the results. A detailed examination of the theory upon which the calculation of the index-numbers is based was given, but being necessarily too technical for the ordinary reader, was relegated to Appendixes. In Labour Reports Nos. 2, 5, 6, 7, 8, 9, 10, 11, and 12, results of further investigations were included, and in Labour Bulletins Nos. 1 to 18, and in Quarterly Summaries of Statistics, Nos. 70 to 86, information was incorporated regarding variations in retail and wholesale prices, house rent, and purchasing-power of money up to the end of 1921.

It must here suffice to state that the method adopted for the computation of the index-numbers is what may very properly be called the "aggregate expenditure" method. The first process is, of course, to work out the average price of each commodity included, and numbers (called "mass-units") representing the *relative* extent to which each commodity was on the average used or consumed are then computed. The price in any year of each commodity multiplied by its corresponding "mass-unit" represents, therefore, the relative total expenditure on that commodity in that year *on the basis of the adopted regimen*. It follows, therefore, that by taking for any year the sum of the price of each commodity multiplied by its corresponding "mass-unit," a figure is obtained which represents the relative aggregate or total expenditure of the community in that year on all the commodities, etc., included. By computing these aggregate expenditures for a series of years and taking the expenditure in any selected year as "base," that is, making the expenditure in that year equal to 1,000 units, the relative expenditure in any other year, that is to say, the "index-numbers," are readily ascertained. Numerical examples of the technique and methods adopted for the computation of index-numbers were given in Report No. 2 (pp. 44 and 45), and in Report No. 9 Appendixes I. to IV., pp. 174 to 229.

2. Scope of Investigation.—It was pointed out in Report No. 1 that, in any investigation into the question of change in cost of living of a community, a careful distinction must be drawn between two things, viz. :—

- (a) Variations in the *purchasing-power* of money, and
- (b) Variations in the *standard of living*.

In Report No. 2, attention was drawn to the fact that the second element (b) can be limited, at any rate to some extent, by the exercise of self-denial and thrift, and that such limitation is at the disposal of each individual; the former (a) is not subject to this possibility. Thus, from this aspect, social economics are concerned *primarily* with an accurate estimation of variations in the purchasing-power of money and only secondarily with the question of the general standard of living which has been reached. The first desideratum demands the selection of a suitable list of commodities, the quantities of each being taken in due proportion to their relative average consumption. The quantities in this list being kept constant, the cost of the whole group must then be ascertained. In this way a comparison may be made of the cost in different areas or districts at the same time, as well as the variation in any one place from time to time. This is the "aggregate expenditure" method explained above.

As explained in Report No. 1, special steps were taken to conduct the investigation back as far as 1901 for the capital towns only. The collection of current monthly returns as to prices and of quarterly returns of house rents commenced in 30 of the more important towns of the Commonwealth in January, 1912.

3. Commodities and Requirements Included.—The 47 items of expenditure included are divided into four groups, viz. :—(i) groceries and bread, (ii) dairy produce, (iii) meat, and (iv) house rent. These items cover about 60 per cent. of the total expenditure of a normal family. There are very cogent reasons for the restriction of the enquiries to the items mentioned. If the comparisons made are to be satisfactory, no confusion must arise between changes in the standard of living and changes arising from a variation of the purchasing-power of money. In order to avoid such confusion the items selected are such as are sensibly identical and identifiable in the various localities. The most important group of expenditure which is not included is clothing. In Labour Report No. 12 (page 25), a tabular statement was given furnishing particulars of the commodities and items included, the units of measurement for which prices are collected, and the mass-units shewing the relative extent to which each item is used or consumed. As the result, however, of a recommendation made by the Royal Commission on the Basic Wage, the Government has authorised the Bureau to extend its investigations to cover the whole of the ordinary expenditure of a household, and in paragraph 12 of this Section, index-numbers are given shewing the variation in the cost of the whole of the items of household expenditure.

4. **Variations in the Purchasing-Power of Money in each Metropolitan Town, 1901 to 1921.**—In Labour Reports and Bulletins, and in recent issues of the Quarterly Summaries of Statistics, index-numbers were given for each of the four groups, and for all groups combined for each capital town since 1901, the expenditure in 1911 being taken in each case as base (=1,000). In this section summarised results only are given, firstly, for food and groceries; secondly, for house rent; and thirdly, for all groups combined—the weighted average expenditure for all capital towns in 1911 being taken in each case as base (=1,000). The index-numbers in each table are fully comparable with each other, that is to say, they shew not only the variations from year to year in each capital town, but also the relative cost as between the towns.

(i) *Food and Groceries.* The index-numbers thus computed for the three groups comprising groceries and food are shewn in the following table :—

RETAIL PRICES IN METROPOLITAN TOWNS, INDEX-NUMBERS FOR GROCERIES AND FOOD (GROUPS I., II., AND III.), 1901 TO 1921.

Town.	1901.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Sydney ..	917	989	1,124	1,131	1,156	1,396	1,520	1,540	1,549	1,783	2,148	1,898
Melbourne ..	965	935	1,082	1,024	1,091	1,411	1,462	1,412	1,466	1,620	2,056	1,901
Brisbane ..	965	1,018	1,102	1,042	1,078	1,373	1,426	1,406	1,495	1,762	2,052	1,812
Adelaide ..	1,023	1,020	1,154	1,119	1,215	1,487	1,532	1,445	1,554	1,719	2,132	1,906
Perth ..	1,184	1,346	1,345	1,267	1,302	1,483	1,542	1,505	1,486	1,772	2,050	1,995
Hobart ..	1,011	1,058	1,190	1,164	1,212	1,445	1,523	1,544	1,635	1,748	2,162	2,025
Weighted Average(a) ..	972	1,000	1,129	1,095	1,144	1,416	1,495	1,472	1,514	1,716	2,101	1,902

(a) For all capital towns.

The above figures are directly comparable in every respect; thus it will be seen that the same quantity of food and groceries, which cost £1,000 in the capital towns considered as a whole in 1911, would have cost £917 in Sydney in 1901, £1,346 in Perth in 1911, or £1,901 in Melbourne in 1921.

The weighted average retail price index-numbers for the six capital cities shew that the upward tendency of prices was temporarily arrested on three occasions since 1911—first in 1913, again in 1917, and again in 1921. The prices for Sydney shew a rise in every year since 1911; in 1917 Sydney and Hobart constituted exceptions to the decline experienced in all the other capitals; while in 1918 the figures for Perth only shewed a decline. In 1919 and 1920 increases were experienced in all the cities concerned. In 1921, decreases were experienced in all the capital cities. Comparing the results for 1921 with those for 1911 it will be seen that the extent by which prices increased, varied from 103 per cent. in Melbourne to 48 per cent. in Perth. It will be noticed, however, that prices were abnormally high in Perth in 1911.

(ii) *House Rent.* In the following table, index-numbers are given computed for the weighted average house rent in each of the capital towns from 1901 to 1921, taking the average rent for the six capital towns in 1911 as the base (=1,000). The average rent has been obtained for each town separately by multiplying the average predominant rent for each class of house (*i.e.*, houses having less than 4 rooms, 4 rooms, 5 rooms, 6 rooms, 7 rooms, and over 7 rooms) by a number ("weight") representing the relative number of houses of that class in the particular town. The sum of the products thus obtained, divided by the sum of the weights, gives the weighted average for all houses. The number of houses in each class for each town was obtained from the results of the 1911 census. It should be observed, therefore, that these index-numbers are based on the weighted average rents for all houses, and that they do not refer to any particular class of houses. The actual predominant rents for each class were given in appendixes to

Labour Reports Nos. 1, 2, 5, 6, 7, 8, 9, 10, 11, and 12, and an examination of these figures shews that for some classes of houses the increase has been greater, and in some less, than the general increase indicated in the following table.

HOUSE RENTS IN METROPOLITAN TOWNS.—INDEX-NUMBERS SHEWING WEIGHTED AVERAGE RENTS (GROUP IV.), 1901 TO 1921.

Town.	1901.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Sydney ..	858	1,090	1,183	1,246	1,279	1,220	1,212	1,215	1,252	1,289	1,415	1,474
Melbourne ..	733	970	1,016	1,089	1,126	1,085	1,089	1,124	1,180	1,283	1,405	1,502
Brisbane ..	488	767	804	863	882	859	847	859	905	983	1,061	1,079
Adelaide ..	629	1,112	1,160	1,125	1,040	932	930	959	1,022	1,108	1,216	1,280
Perth ..	801	810	880	928	914	848	869	874	885	916	996	1,055
Hobart ..	667	805	829	887	914	928	928	951	956	1,134	1,373	1,440
Weighted Average(a) ..	751	1,000	1,063	1,118	1,135	1,081	1,081	1,098	1,143	1,215	1,333	1,404

(a) For all capital towns.

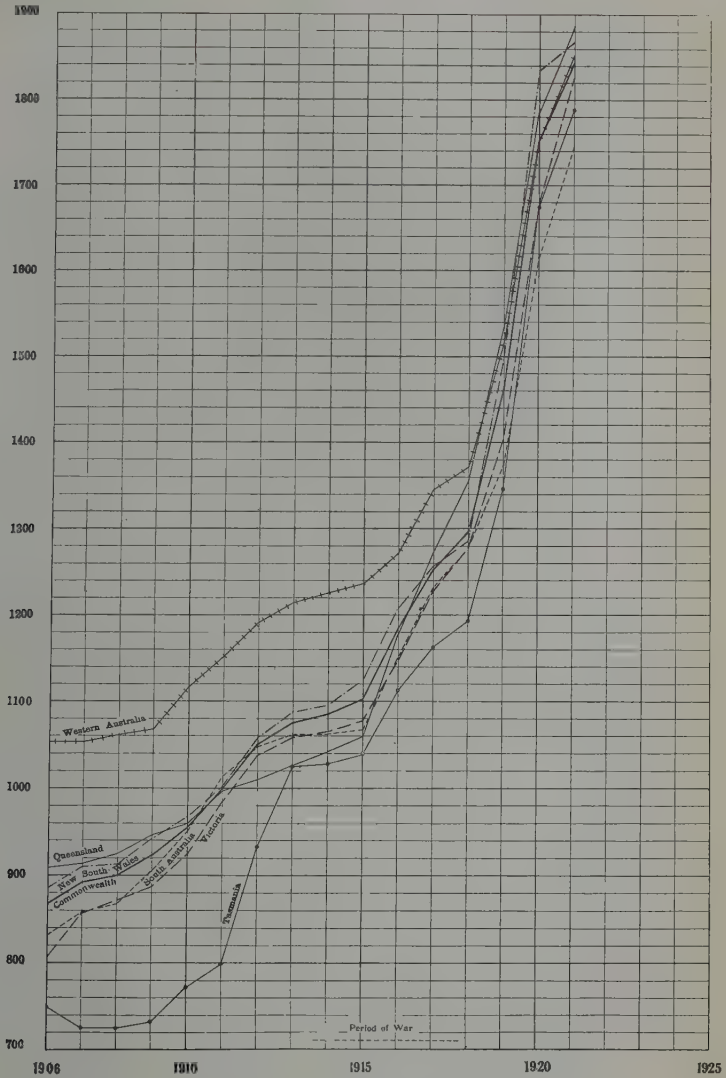
NOTE.—The above figures are directly comparable in every respect.

The figures given in the above table shew that from 1901 to 1914 house rents increased in all the capital cities, though varying in degree, from 14 per cent. in Perth to 81 per cent. in Brisbane, where, however, rents were very low in 1901. The weighted average index-number, which is, of course, largely dominated by the experience of the more populous cities of Sydney (with an increase of 49 per cent.) and Melbourne (54 per cent.) increased from 751 in 1901 to 1,135 in 1914, or by 51 per cent. This increase in the weighted average represents the accumulated results of increments of varying amount, in each of the years 1901-1914 without exception. These annual increments to rents were experienced in all the capital cities except Adelaide and Perth. Since 1916 rents have advanced in all the capital cities. The rent index-numbers for Perth for the years 1904-10 consistently followed a direction opposite to that taken by the same indices relating to the other cities, inasmuch as, instead of moving upward, they declined during each year, the aggregate result being a fall from 802 in 1903 to 667 in 1909, and, although they rose in 1910 to 696, they were even then below the level of 1903. This period of falling rents in Perth—in such striking contrast to the experience of all the other capital cities—was contemporaneous with a diminution almost to vanishing point of net immigration, which for many years had been considerable. A further factor in the arrest of the growth of population consisted in the reduction of public expenditure following upon the completion of large public works, while, at the same time, there was a falling-off in speculative ventures in gold-mining. Moreover, during this period there was a marked movement by residents of Perth to land settlement in the southern districts of the State.

A further striking feature in the movements of rents, as shewn by the weighted average index-numbers given in the foregoing table, is the decline registered in the years 1915-1917. This fall was probably, in some measure, due to the circumstance that wives and other dependents of soldiers, for social reasons, gave up their separate establishments and shared houses or apartments, thus reducing the demand for house accommodation. The Government regulations forbidding the increase of rents of houses tenanted by soldiers' dependents would, also, have a restraining influence on any tendency for rents to rise. It will be seen that in 1918 rents were again at the 1914 level, and that in 1919, 1920, and 1921 fairly substantial increases occurred.

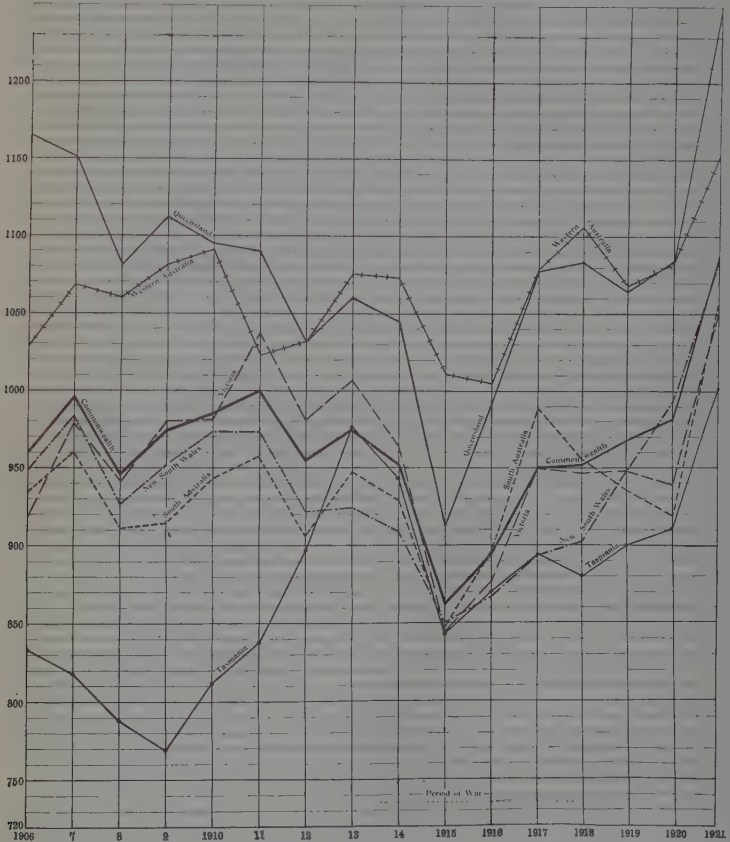
(iii) *Food, Groceries, and House Rent combined.* The weighted averages for all four groups are of importance, as indicating the general results of this investigation so far as the purchasing-power of money is concerned. The following table shews the

NOMINAL WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH, 1906 TO 1921.



(See page 880.)

EFFECTIVE WAGE INDEX-NUMBERS IN EACH STATE AND COMMONWEALTH,
1906 TO 1921.



(See page 880.)

REFERENCE TO NUMBERS ON MAP.

	1913.		1914.		1915.		1918.		1919.		1920.		1921.		1915.		1918.		1919.		1920.		1921.	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1 SYDNEY ..	1,109	634	1,124	651	1,321	861	1,372	896	1,586	1,096	1,796	1,251	1,541	984	1,110	922	1,046	874	1,147	994	1,486	1,279	1,197	1,003
2 Newcastle ..	960	637	972	648	1,228	847	1,279	907	1,568	1,096	1,811	1,290	1,526	997	1,174	868	1,261	888	1,455	1,027	1,759	1,253	1,474	973
3 Broken Hill ..	1,116	768	849	778	1,192	1,013	1,298	954	1,528	1,185	1,800	1,458	1,334	992	1,137	873	1,150	879	1,339	1,065	1,612	1,277	1,355	1,040
4 Goulburn ..	974	629	1,035	667	1,271	854	1,287	903	1,467	1,079	1,738	1,306	1,444	970	1,146	920	1,171	956	1,380	1,156	1,537	1,333	1,238	1,034
5 Bathurst ..	892	583	909	608	1,102	825	1,112	858	1,314	1,020	1,638	1,306	1,287	955	1,135	841	1,247	909	1,497	1,124	1,712	1,291	1,477	1,027
6 Armidale ..	875	601	948	618	1,148	863	1,263	899	1,441	1,094	1,689	1,266	1,368	1,000	1,165	884	1,171	929	1,428	1,097	1,608	1,235	1,470	1,055
7 Cobarr ..	987	661	881	742	996	907	1,189	923	1,338	1,191	1,476	1,348	1,226	1,099	1,202	883	1,339	988	1,538	1,155	1,753	1,370	1,429	1,017
8 Cooma ..	861	638	975	652	1,221	962	1,195	898	1,451	1,136	1,718	1,383	1,465	1,007	1,078	854	1,135	905	1,349	1,119	1,601	1,314	1,345	1,019
9 Cootamundra ..	977	632	990	653	1,290	892	1,363	894	1,489	1,045	1,857	1,369	1,514	1,021	1,217	854	1,280	917	1,572	1,107	1,678	1,212	1,390	987
10 Deniliquin ..	836	606	943	675	1,199	924	1,190	904	1,343	1,020	1,645	1,318	1,410	1,037	1,131	886	1,215	908	1,421	1,064	1,692	1,290	1,432	985
11 Grafton ..	919	632	922	654	1,131	913	1,254	935	1,388	1,086	1,640	1,308	1,431	1,033	1,101	869	1,246	895	1,392	1,041	1,587	1,187	1,341	929
12 Hay ..	913	688	989	740	1,277	1,006	1,300	889	1,406	1,088	1,695	1,339	1,431	1,033	1,121	861	1,205	905	1,392	1,041	1,587	1,187	1,341	929
13 Lismore ..	931	628	1,042	723	1,213	860	1,353	938	1,535	1,120	1,684	1,250	1,526	1,076	1,221	902	1,310	927	1,603	1,109	1,749	1,245	1,512	983
14 Lithgow ..	915	695	1,042	723	1,213	860	1,353	938	1,535	1,120	1,684	1,250	1,526	1,076	1,252	870	1,271	888	1,456	1,112	1,670	1,245	1,512	983
15 Mudgee ..	981	681	1,041	696	1,256	937	1,406	960	1,599	1,190	1,832	1,386	1,435	1,040	1,201	841	1,312	955	1,570	1,178	1,714	1,233	1,418	988
16 Queanbeyan ..	1,052	650	980	635	1,213	906	1,194	914	1,421	1,105	1,657	1,340	1,352	1,012	1,223	885	1,279	902	1,505	1,083	1,691	1,243	1,508	1,010
17 Tamworth ..	902	599	1,066	649	1,231	874	1,247	911	1,469	1,122	1,648	1,238	1,452	922	1,235	847	1,368	928	1,579	1,101	1,837	1,307	1,698	1,076
18 Wagga Wagga ..	967	584	949	670	1,172	834	1,315	875	1,464	1,018	1,628	1,204	1,402	956	1,120	862	1,195	908	1,351	1,061	1,600	1,230	1,473	1,010
20 Yass ..	943	637	1,040	676	1,251	948	1,239	911	1,492	1,159	1,810	1,431	1,438	1,003	1,192	877	1,213	926	1,593	1,192	1,704	1,283	1,398	1,004
21 West Wyalong ..	966	631	952	669	1,130	890	1,278	935	1,474	1,123	1,672	1,322	1,427	1,076	1,200	856	1,172	917	1,514	1,119	1,710	1,227	1,423	1,040
22 MELBOURNE ..	964	568	1,019	628	1,240	852	1,304	861	1,472	995	1,780	1,246	1,496	942	1,210	834	1,219	888	1,440	1,065	1,639	1,221	1,368	960
23 Ballarat ..	767	566	845	636	1,034	874	1,051	842	1,203	979	1,547	1,265	1,245	947	1,153	879	1,238	941	1,471	1,088	1,724	1,277	1,456	988
24 Bendigo ..	815	573	873	641	1,068	843	1,090	826	1,207	935	1,527	1,207	1,274	939	1,262	911	1,272	924	1,475	1,076	1,742	1,277	1,476	1,029
25 Geelong ..	872	579	943	639	1,145	849	1,122	821	1,340	984	1,601	1,200	1,388	960	1,197	859	1,233	920	1,455	1,105	1,610	1,229	1,388	1,001
26 Warrnambool ..	865	581	914	620	1,152	868	1,172	863	1,353	972	1,711	1,281	1,439	968	1,141	838	1,227	902	1,456	1,108	1,681	1,298	1,405	1,019
27 Ararat ..	833	577	915	641	1,179	895	1,160	879	1,302	1,021	1,707	1,313	1,382	1,050	1,180	874	1,243	911	1,447	1,090	1,651	1,255	1,345	983
28 Bairnsdale ..	796	579	838	615	1,155	903	1,136	876	1,320	1,052	1,674	1,281	1,458	1,016	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
29 Camperdown ..	866	572	915	625	1,101	818	1,148	865	1,300	975	1,596	1,219	1,382	952	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
30 Castlemaine ..	773	547	911	636	1,137	862	1,138	884	1,283	1,005	1,608	1,292	1,318	970	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
31 Creswick ..	730	577	808	636	1,056	883	1,055	858	1,145	1,018	1,401	1,270	1,086	940	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
32 Daylesford ..	779	590	817	638	1,073	885	1,060	853	1,222	1,026	1,534	1,291	1,288	982	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
33 Echuca ..	811	607	857	672	1,061	876	1,069	862	1,208	985	1,624	1,305	1,323	988	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
34 Hamilton ..	871	594	928	636	1,275	924	1,160	860	1,314	970	1,645	1,252	1,441	1,018	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
35 Horsham ..	849	534	988	670	1,202	921	1,189	890	1,393	1,016	1,727	1,312	1,573	1,020	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
36 Koroombura ..	839	596	892	625	1,162	907	1,189	835	1,284	964	1,583	1,238	1,320	982	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
37 Kyneton ..	786	562	780	611	1,114	887	1,098	849	1,245	951	1,581	1,259	1,338	981	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
38 Maryborough ..	745	573	808	626	1,029	844	1,040	855	1,205	988	1,521	1,259	1,282	991	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
39 Mildura ..	972	608	1,053	696	1,272	939	1,356	896	1,523	1,064	1,801	1,302	1,799	1,119	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
40 Nhill ..	867	593	905	656	1,121	887	1,170	889	1,261	989	1,536	1,230	1,362	1,045	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
41 Portland ..	796	592	904	624	1,220	928	1,170	872	1,326	1,024	1,549	1,239	1,435	1,024	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
42 Sale ..	784	551	874	634	1,070	824	1,085	836	1,259	970	1,600	1,237	1,294	942	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
43 Swan Hill ..	975	618	1,000	649	1,279	874	1,288	858	1,423	993	1,708	1,229	1,519	977	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
44 Walhalla ..	790	687	808	693	1,025	897	982	880	1,126	1,037	1,427	1,325	1,174	1,072	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
45 Wangaratta ..	825	589	965	662	1,173	876	1,165	843	1,323	1,021	1,724	1,343	1,401	999	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
46 Warracknabeal ..	810	555	877	647	1,082	814	1,082	804	1,266	955	1,561	1,211	1,325	968	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
47 BRISBANE ..	878	583	919	627	1,166	878	1,205	901	1,441	1,091	1,510	1,140	1,342	975	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
48 Toowoomba ..	840	603	898	646	1,119	894	1,192	931	1,350	1,073	1,413	1,089	1,245	913	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
49 Rockhampton ..	863	617	920	668	1,184	945	1,178	924	1,390	1,128	1,413	1,149	1,231	969	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
50 Charters Towers ..	907	658	997	752	1,188	942	1,301	1,015	1,472	1,170	1,512	1,216	1,311	1,002	1,188	859	1,233	920	1,456	1,108	1,681	1,298	1,405	1,019
51 Warwick ..	822	590	863	635	1,077	863	1,175	922	1,355	1,084														

MELBOURNE WHOLESALE PRICE INDEX-NUMBERS, 1861 TO 1921.



EXPLANATORY NOTE.—The scale for each of the graphs for groups 1, 3, 5, and 7 is shown by the figures on the right of the diagram, that for the graphs for groups 2, 4, 6 and 8, on the left of the diagram, the line marked 1000 shewing the base line (for the year 1911) in each case. The heavy line in each graph represents the index-numbers for all groups combined, the light line (dotted thus . in the case of the even groups) indicating in each instance the index-numbers for the separate group. (See page 911.)

index-numbers for groceries, food, and house rent for each metropolitan town. the weighted average cost for the six capital towns in 1911 being taken as base (=1,000):—

PURCHASING-POWER OF MONEY IN METROPOLITAN TOWNS.—PRICE INDEX-NUMBERS^(a) SHEWING WEIGHTED AVERAGE RESULTS FOR ALL GROUPS (GROCERIES, DAIRY PRODUCE, MEAT, AND HOUSE RENT), 1901 TO 1921.

Town	1901.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Sydney ..	893	1,031	1,148	1,178	1,206	1,323	1,394	1,406	1,427	1,580	1,847	1,724
Melbourne ..	870	950	1,055	1,051	1,105	1,277	1,309	1,294	1,349	1,481	1,788	1,737
Brisbane ..	769	915	979	969	997	1,162	1,188	1,181	1,252	1,442	1,645	1,511
Adelaide ..	864	1,058	1,157	1,121	1,143	1,259	1,285	1,245	1,335	1,468	1,756	1,653
Perth ..	1,027	1,126	1,154	1,128	1,143	1,222	1,266	1,246	1,239	1,420	1,617	1,609
Hobart ..	869	954	1,042	1,050	1,090	1,233	1,278	1,301	1,356	1,496	1,837	1,785
Weighted Average ^(b) ..	880	1,000	1,101	1,104	1,140	1,278	1,324	1,318	1,362	1,510	1,785	1,697

(a) As the price index-number increases, the purchasing-power of money diminishes.

(b) For all capital towns.

NOTE.—The above figures are directly comparable in every respect.

From this table, which presents the index-numbers for the combined results from food and groceries and rents, it will be seen that, on the basis of the weighted average for the six capital cities, the decline (alluded to in (i) of this sub-section) in the prices of food and groceries during 1913 was more than counterbalanced by the rise in house rents. This, however, was not the case with regard to Melbourne, Brisbane, or Perth, for each of which the combined index shews a decline. Adelaide, alone, shewed a decrease in house rents in 1913, consequently the decline in the combined index-number for that city was the most marked. In 1917 the fall in the prices of food and groceries was sufficient to outweigh the increase in house rents and so effect a slight decrease in the combined index-number. As in 1913, the net effect in Sydney and in Hobart did not conform to the experience indicated by the weighted average. In 1918 the upward movement was experienced in all the cities except Perth, while in 1919 and 1920 it was general throughout. In 1921, there was a fall in the prices of food and groceries in all the capital cities.

The abnormal movements of the prices of food and groceries and of house rents during the war years present features of particular interest. It will be seen that, on the basis of the weighted averages, prices of food and groceries rose in 1915 by about 24 per cent. over 1914, and continued on a somewhat higher level, whereas the weighted average for house rents fell in 1915 by 4.8 per cent., and remained below the 1913 level until 1918. The combination of house rents with prices of food and groceries has had the effect of very materially modifying the index of prices, or, in other words, the purchasing-power of money, as compared with the similar index based on food and groceries only. In 1918, 1919, and 1920 there were increases in both prices of food and groceries and house rents, the combined results for 1920 being an increase of 18.2 per cent. over 1919, 56.6 per cent. over 1914, and 78.5 per cent. over 1911. The increase in the purchasing-power of money index-number between 1920 and 1914 has varied between the capital cities from 41 per cent. in Perth to 69 per cent. in Hobart, while between 1920 and 1911 it has varied between 44 per cent. in Perth and 93 per cent. in Hobart. It will be seen that the decrease in cost in 1921 was very slight in Perth compared with the decrease in the remaining cities.

5. Variation in Purchasing-Power of Money, 1901 to 1921.—The tables in sub-section 4 give the relative cost in the six capital towns of food, groceries, and house rent from 1901 to 1921 in the form of index-numbers. The figures have been converted into a monetary basis in the next table, and shew the sums which would have to be paid in each town and in each year in order to purchase such relative quantities (indicated by the mass-units) of the several commodities, and to pay such sums for house rent as would in the aggregate cost £1, according to the weighted average prices and rents in the six capital towns in 1911.

CHANGES IN PURCHASING-POWER OF MONEY (FOOD, GROCERIES, AND HOUSE RENT), 1901-21.

Year.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.	Weighted Average of 6 Capital Towns.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
1901	17 10	17 5	15 5	17 3	20 6	17 5	17 7
1906	18 8	17 7	15 7	17 10	20 5	18 0	18 0
1911	20 7	19 0	18 4	21 2	22 6	19 1	20 0a
1913	23 7	21 0	19 5	22 5	22 6	21 1	22 1
1914	24 1	22 1	19 11	22 10	22 10	21 10	22 10
1915	26 6	25 6	23 3	25 2	24 5	24 8	25 7
1916	27 10	26 2	23 9	25 8	25 4	25 7	26 6
1917	28 1	25 11	23 7	24 11	24 11	26 0	26 4
1918	28 6	27 0	25 1	26 8	24 9	27 1	27 3
1919	31 7	29 7	28 10	29 4	28 5	29 11	30 2
1920	36 11	35 9	32 11	35 1	32 4	36 9	35 8
1921	34 6	34 10	33 3	33 1	32 2	35 8	33 11

(a) Basis of Table.

(i) *Groceries and Food only.* The following table has been computed in the same manner as that indicated above, but relates to *groceries and food* (46 items) *only*. The average expenditure for the six capital towns in 1911 has again been taken as the basis of the table (=20 shillings) and the figures are, of course, comparable throughout.

CHANGES IN PURCHASING-POWER OF MONEY.—GROCERIES AND FOOD, 1901-21.

Year.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.	Weighted Average of 6 Capital Towns.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
1901	18 4	19 4	19 4	20 7	23 8	20 3	19 4
1906	19 3	18 11	19 2	19 8	24 9	20 11	19 7
1911	19 9	18 8	20 4	20 5	26 11	21 2	20 0a
1913	22 8	20 6	20 10	22 5	25 4	23 3	21 11
1914	23 1	21 10	21 7	24 4	26 0	24 3	22 11
1915	27 11	28 3	27 6	29 9	29 8	28 11	28 4
1916	30 5	29 3	28 6	30 8	30 10	30 5	29 11
1917	30 10	28 3	28 2	28 11	30 1	30 11	29 5
1918	31 0	29 4	29 11	31 1	29 9	32 8	30 3
1919	35 8	32 5	35 3	34 5	35 5	35 0	34 4
1920	43 0	41 1	41 1	42 8	41 0	43 3	42 0
1921	38 0	38 0	36 3	38 1	40 0	40 6	38 0

(a) Basis of Table.

(ii) *House Rent only.* The following table gives similar particulars for *house rent only*, the average for the six capital towns in 1911 being again taken as the basis of the table (=20 shillings) :—

CHANGES IN PURCHASING-POWER OF MONEY.—HOUSE RENT, 1901-21.

Year.	Sydney.	Melbourne.	Brisbane.	Adelaide.	Perth.	Hobart.	Weighted Average of 6 Capital Towns.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
1901	17 3	14 8	9 9	12 7	16 0	13 4	15 1
1906	17 11	15 8	10 6	15 3	14 4	13 9	15 11
1911	21 10	19 5	15 4	22 3	16 3	16 1	20 0a
1913	24 11	21 10	17 3	22 6	18 7	17 10	22 4
1914	25 7	22 6	17 8	20 10	18 3	18 3	22 8
1915	24 5	21 8	17 2	18 8	17 0	18 7	21 7
1916	24 3	21 9	17 0	18 7	17 4	18 7	21 7
1917	24 3	22 6	17 5	19 2	17 5	19 0	22 0
1918	25 0	23 7	18 1	20 5	17 8	19 1	22 10
1919	25 9	25 8	19 8	22 2	18 4	22 8	24 4
1920	28 4	28 1	21 3	24 4	19 11	27 5	26 8
1921	29 6	30 0	21 7	25 9	21 0	28 10	28 1

(a) Basis of Table.

6. Relative Cost of Food, Groceries, and House Rent in Different Towns, 1921.—

The index-numbers given in the preceding paragraphs shew *changes in the cost of food, groceries, and house rent separately for each capital town during the years 1901 to 1921*. The figures given in the table below shew *the relative cost of food and groceries, and of house rent in 1921 in the thirty towns for which particulars are now collected*. The weighted aggregate expenditure for the six capital towns for the year 1911 has been taken as base and made equal to 1,000, hence the columns are comparable both horizontally and vertically.

INDEX-NUMBERS, SHEWING RELATIVE COST IN THIRTY TOWNS, OF FOOD AND GROCERIES AND HOUSE RENT COMPARED WITH WEIGHTED AVERAGE EXPENDITURE THEREON IN THE SIX CAPITAL TOWNS IN 1911 AS BASE (=1,000), YEAR 1921.

Town.	Groceries and Food.	HOUSE RENT.				GROCERIES, FOOD AND RENT, INCLUDING HOUSES HAVING—			
		Four-roomed Houses only.	Five-roomed Houses only.	Six-roomed Houses only.	All Houses Weight'd Average.	Four Rooms.	Five Rooms.	Six Rooms.	All Houses Weight'd Average.
NEW SOUTH WALES—									
Sydney	1,118	485	568	663	606	1,603	1,686	1,781	1,724
Newcastle	1,140	380	546	686	529	1,520	1,686	1,826	1,669
Broken Hill (a) ..	1,254	282	352	438	300	1,536	1,606	1,692	1,554
Goulburn	1,132	372	489	655	562	1,504	1,621	1,787	1,694
Bathurst	1,110	247	342	461	383	1,357	1,452	1,571	1,493
Weighted Average ..	1,126	463	553	653	583	1,589	1,679	1,779	1,709
VICTORIA—									
Melbourne	1,120	434	553	713	617	1,554	1,673	1,833	1,737
Ballarat	1,126	201	306	413	376	1,327	1,432	1,539	1,502
Bendigo	1,107	262	340	467	385	1,369	1,447	1,574	1,492
Geelong	1,138	332	430	550	474	1,470	1,568	1,688	1,612
Warrnambool .. .	1,131	334	472	548	473	1,465	1,603	1,679	1,604
Weighted Average ..	1,120	401	516	667	578	1,521	1,636	1,787	1,698
QUEENSLAND—									
Brisbane	1,068	291	378	490	443	1,359	1,446	1,558	1,511
Toowoomba	1,010	257	341	447	422	1,267	1,351	1,457	1,432
Rockhampton .. .	1,080	225	271	369	344	1,305	1,351	1,449	1,424
Charters Towers ..	1,120	248	308	390	303	1,368	1,428	1,510	1,423
Warwick	1,071	266	343	424	397	1,337	1,414	1,495	1,468
Weighted Average ..	1,068	276	356	463	418	1,344	1,424	1,531	1,486
SOUTH AUSTRALIA—									
Adelaide	1,123	384	530	650	530	1,507	1,653	1,773	1,653
Moonta, etc. .. .	1,127	255	342	451	349	1,382	1,469	1,578	1,476
Port Pirie (a) ..	1,155	324	404	482	370	1,479	1,559	1,637	1,525
Mt. Gambier .. .	1,109	226	287	380	309	1,335	1,396	1,489	1,418
Peterborough .. .	1,151	293	392	448	385	1,444	1,543	1,599	1,536
Weighted Average ..	1,124	369	505	621	504	1,493	1,629	1,745	1,628
WESTERN AUSTRALIA—									
Perth, etc.	1,175	373	464	564	434	1,548	1,639	1,739	1,609
Kalgoorlie, etc. ..	1,300	355	431	500	347	1,655	1,731	1,800	1,647
Mid. Junction, etc. .	1,200	283	393	505	361	1,483	1,593	1,705	1,561
Bunbury	1,195	312	373	410	292	1,507	1,568	1,605	1,487
Geraldton	1,188	387	474	592	408	1,575	1,662	1,780	1,596
Weighted Average ..	1,203	364	561	544	408	1,567	1,654	1,747	1,611
TASMANIA—									
Hobart	1,193	448	553	653	592	1,641	1,746	1,846	1,785
Launceston	1,139	321	460	432	473	1,460	1,599	1,571	1,612
Zeehan	1,257	176	227	273	167	1,433	1,484	1,530	1,424
Beaconsfield .. .	1,136	61	89	103	83	1,197	1,225	1,239	1,219
Queenstown	1,212	263	342	369	256	1,475	1,554	1,581	1,468
Weighted Average ..	1,178	368	476	525	493	1,546	1,654	1,703	1,671
Commonwealth									
Weighted Average, 30 Towns ..	1,126	403	506	624	542	1,529	1,632	1,750	1,668

(a) See remarks on page 48 of Labour Report No. 12, with reference to house rents.

A table showing the retail price index-numbers (food and groceries) for each of the thirty towns for various months in the year since July, 1914, appeared in previous issues, but consideration of space precludes its repetition in the present issue. This table is, however, given in Labour Report No. 11, issued by this Bureau.

§ 11. Investigation into Purchasing-Power of Money in 150 Towns in Commonwealth.

1. **Introduction.**—In the earlier investigations with regard to the variations in the purchasing-power of money, inquiries were restricted to the 30 towns mentioned in the preceding table. To provide a wider field of observation, investigations were extended in November, 1913, to 100 towns, and in November, 1915, to 150 towns. The index-numbers for these 150 towns are computed from the retail prices ruling in November of each year.

2. **Map shewing the relative Purchasing-Power of Money in various Localities.**—The index-numbers for each of the 150 towns referred to in the preceding paragraph are tabulated on the inset on page 903, and are accompanied by a map of Australia. The position of any town may be located on the map by the reference numbers printed on the left-hand margin of the table. The weighted average cost for the 100 towns in 1913 has been taken as the base, and the index-numbers are comparable throughout. Separate index-numbers are given for food, groceries, and rent of five-roomed houses (Column headed "A"), and for food and groceries only (Column headed "B").

§ 12. Variations in the Cost of Food, Groceries, Rent, Clothing and Miscellaneous Expenditure.

1. **Introduction.**—The index-numbers in the preceding paragraphs of this Section shew the variations in the cost of food, groceries, and house rent. The expenditure on these items covers approximately 60 per cent. of the total expenditure of the ordinary household. The balance is expended on clothing, boots, fuel, light, and such miscellaneous items as renewals of furniture, furnishings, drapery, crockery, lodge dues, trade union dues, recreation, newspapers, etc. The Royal Commission on the Basic Wage recommended in its Report that some method should be adopted to ascertain from time to time the rise and fall in the purchasing-power of money in its relation to the total household expenditure. The Government adopted the recommendation, and the duty of carrying it out was entrusted to this Bureau. As the result of investigations and enquiry as to the methods followed in other countries, the methods hereafter described have been adopted for the purpose of measuring variations in the cost of the whole household expenditure.

2. **Methods Adopted.**—The Commission was concerned principally with the ascertainment of variations in the cost of the regimen which its members adopted, and which is described in the Indicator Lists published in the Report. It is clear, however, that to confine the investigations by this Bureau in the way suggested by the Commission, would be to limit their usefulness. It has therefore been decided to apply to the extended investigation the method of index-numbers already used in the investigations into variations in the cost of food, groceries, and rent. The index-numbers may be used to determine accurately from time to time the rise and fall in the purchasing-power of money in relation to the reasonable standard of comfort for the typical family as outlined by the Commission, as well as for the determination of variations in any standard fixed by previous investigators or which may be fixed in the future.

After careful investigation it has been decided to adopt for food, groceries, and house rent the commodities, method, and weighting already in use for the investigations which have been and are being made by this Bureau. The commodities and quantities adopted for food and groceries conform very closely to those given in the Indicator Lists of the Commission. With regard to rent, the Commission adopted a certain type of five-roomed house as its standard for determining the amount allowed for house rent. The investigations made by this Bureau, while not confined to any particular type but to the Predominant House Rent, can with safety be used to shew variations in the rent being paid for the type of house described by the Commission.

The investigations of this Bureau have advisedly hitherto been confined to food, groceries, and house rent,* and it has been necessary, therefore, to make investigations into the cost of clothing and miscellaneous expenditure. With regard to clothing, the Basic Wage Commission collected a great deal of information as to prices and life of articles, and these have been utilised in computing the index-numbers given in the following tables. Forms have been sent out to retailers on which the prices of the articles at November, 1920, were given. These prices, so far as the capital cities are concerned (being in general the prices quoted by the firms to whom the forms were sent), are the predominant prices, *i.e.*, the price of the grade of the articles which is most in demand. The retailers were asked to quote for November, 1921, and for May, 1922, the prices of the same articles. In order to ascertain the change in expenditure, the quantities and life as given in the Indicator Lists of the Basic Wage Commission have been used for "weighting" purposes, in order to arrive at a weekly expenditure for clothing. This weekly expenditure is then multiplied by weights in the same manner as is the weekly expenditure on rent, in order to arrive at an aggregate expenditure comparable with the aggregate expenditure on food and groceries and on rent.

With regard to Miscellaneous Expenditure, which covers a very wide field, inquiries have been made as to variations in cost of fuel and light, household utensils, drapery, crockery, etc., and also with regard to other items included in the Indicator Lists for Miscellaneous Expenditure, and the aggregate expenditure on these items has been computed in the same manner as that for clothing.

The item Groceries (not Food) has been omitted from Miscellaneous Expenditure, though it was so described by the Commission, as the index-numbers already published by this Bureau cover the items allowed for in this amount, such as soap, starch, blue, etc.

3. Base Period.—For the purpose of making comparisons, it is necessary to fix some period as the base period with which all other periods are compared. In the case of index-numbers for food, groceries, and rent, already published, the base period is the year 1911. For the new index-numbers, covering all the items of household expenditure, November, 1914, has been adopted. This has been necessary because of the difficulty of securing information with regard to prices of clothing and miscellaneous items for years prior to 1914. While the index-numbers for 1914 in the following tables relate to the month of November, it may be accepted as typical of immediately pre-war conditions. As in the case of the base period, 1911, the weighted average cost of the six capital cities has been taken, and the aggregate expenditure in November, 1914, made equal to 1,000.

4. Variations in Cost in the Metropolitan Towns.†—The following table shews, by means of index-numbers, the variations in the cost of the commodities and services included in the investigation. The cost in November, 1914, in the six capital cities considered as a whole has been taken as the basis of the table and made equivalent to 1,000. The index-numbers are comparable and shew the variations not only in each town from period to period but also as between the various towns at any given period. Thus it may be seen that the increase in cost in the six capital cities from November, 1914, was greatest in November, 1920, and amounted to 66.5 per cent. The increase

* See pages 22-25 of Labour Report No. 12.

† In Labour Report No. 12, p. 73, index-numbers are given shewing the relative cost for November, 1921, and May, 1922, in 30 of the principal towns of the Commonwealth.

in May, 1922, compared with November, 1914, was 42.0 per cent. Again the table shows that in May, 1922, the cost of the commodities and services included was greatest in Hobart (1,515) and least in Brisbane (1,270).

TOTAL HOUSEHOLD EXPENDITURE—(FOOD, GROCERIES, RENT, CLOTHING AND OTHER MISCELLANEOUS EXPENDITURE COMBINED). INDEX-NUMBERS FOR THE METROPOLITAN TOWNS WITH WEIGHTED AVERAGE COST IN THE SIX CAPITAL CITIES IN NOVEMBER, 1914, AS BASE (= 1,000).

Towns.	November.								May 1922.
	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.	
Sydney	1,037	1,159	1,187	1,266	1,328	1,505	1,681	1,477	1,438
Melbourne	986	1,117	1,124	1,194	1,294	1,437	1,704	1,475	1,435
Brisbane	898	1,046	1,016	1,114	1,222	1,408	1,511	1,330	1,270
Adelaide	997	1,114	1,140	1,186	1,265	1,447	1,657	1,411	1,427
Perth	1,001	1,059	1,123	1,166	1,238	1,404	1,552	1,409	1,380
Hobart	997	1,110	1,121	1,253	1,311	1,489	1,724	1,536	1,515
Weighted Average*	1,000†	1,123	1,140	1,213	1,295	1,461	1,665	1,454	1,420

* For all capital towns.

† Basis of the table.

§ 13. Wholesale Prices.

1. **General.**—The results of an investigation into wholesale prices in Melbourne from 1871 to the end of September, 1912, were given in some detail in Report No. 1 of the Labour and Industrial Branch. Summarized results for later years are included in later Reports of the same Branch.

The index-numbers up to the year 1911 are based on the prices of eighty commodities, but since that year the number has been increased to ninety-two.* The methods followed for the computation of the wholesale price index-numbers are the same as those adopted in regard to retail prices. The commodities included, the units of measurement, for which the prices are taken, and the mass-units, indicating the relative extent to which each commodity is used or consumed, are shown in a tabular statement in Labour Report No. 11 (page 68).

2. **Index-Numbers and Graphs.**—Index-numbers have been computed for each group of commodities, as well as for all groups together. The index-numbers for the several groups, and for all groups together, are shown in the following table.

(i) *Table of Index-Numbers.* The index-numbers have in each case been computed with the prices in the year 1911 as base. They show, for each of the years specified, the expenditure necessary, if distributed in purchasing the relative quantities (indicated by the mass-units) of the several commodities concerned, to purchase what would have cost £1,000 in 1911. Thus, in the last column it may be seen that the cost of the relative quantities of the various commodities was 1,229 in 1871, and 974 in 1901, as compared with 1,000 in 1911, 1,934 in 1918, 2,055 in 1919, and 2,480 in 1920. In other words, prices were lower in 1911 than in either 1871, 1914, 1918, or 1920, and the purchasing-power of money in 1911 was, accordingly, greater. Again, prices were lower in 1901 than in 1911, and the purchasing-power of money in the former year was, therefore, greater.

* In the computation of the index-numbers for years prior to 1911, the aggregate expenditure on 80 commodities in 1911 is taken as base (= 1,000), while for later years the aggregate expenditure on 92 commodities is taken.

**MELBOURNE WHOLESALE PRICES, INDEX-NUMBERS, 1861 TO 1921,
COMPUTED TO YEAR 1911 AS BASE.**

Year.	I. Metals and Coal.	II. Jute, Leather, etc.	III. Agri- cultural Produce, etc.	IV. Dairy Produce.	V. Gro- ceries.	VI. Meat.	VII. Building Mate- rials.	VIII. Chem- icals.	All com- modities together.
1861	1,438	1,881	1,583	1,008	1,963	..	1,070	2,030	1,538
1871	1,096	1,257	1,236	864	1,586	..	1,044	1,409	1,229
1881	1,178	1,115	1,012	935	1,421	..	1,091	1,587	1,121
1891	895	847	1,024	995	1,032	888	780	1,194	945
1901	1,061	774	928	1,029	1,048	1,345	841	917	974
1902	1,007	756	1,193	1,215	945	1,447	837	881	1,051
1903	923	884	1,209	1,059	936	1,443	875	921	1,049
1904	821	885	754	876	916	1,427	845	875	890
1905	772	850	894	980	942	1,209	801	859	910
1906	882	978	916	972	923	1,110	896	864	948
1907	1,037	1,017	973	1,020	948	1,294	968	961	1,021
1908	1,033	901	1,312	1,198	968	1,335	935	891	1,115
1909	1,014	907	1,000	1,119	978	1,088	911	815	993
1910	1,004	1,052	969	1,100	999	1,008	996	898	1,003
1911	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1912	1,021	991	1,370	1,206	1,052	1,357	1,057	978	1,170
1913	1,046	1,070	1,097	1,054	1,024	1,252	1,128	995	1,088
1914	1,099	1,032	1,207	1,137	1,021	1,507	1,081	1,253	1,149
1915	1,284	1,017	2,162	1,530	1,133	2,435	1,275	1,528	1,604
1916	1,695	1,423	1,208	1,485	1,322	2,515	1,491	1,760	1,504
1917	2,129	2,008	1,157	1,423	1,343	2,403	1,884	2,171	1,662
1918	2,416	2,360	1,444	1,454	1,422	2,385	2,686	3,225	1,934
1919	2,125	2,363	1,985	1,651	1,516	2,348	2,851	2,898	2,055
1920	2,298	2,624	2,439	2,209	1,918	3,279	3,226	2,825	2,480
1921	2,173	1,362	1,767	2,000	1,976	2,158	2,733	2,303	1,903

NOTE.—The figures given in this table are comparable in the vertical columns, but are not directly comparable horizontally. The index-numbers are reversible.

(ii) *Graphs.* The index-numbers are shewn for each group and for all groups combined in the graphs on page 904. The heavy line, repeated on each graph, represents the index-numbers for the weighted average for all groups, and is shewn so that comparison may be made between the price levels for all commodities and those for the commodities comprised in each group separately. The index-numbers for the individual groups are represented by the light lines. The broken lines at the commencement of each graph shew the index-numbers for the separate years 1861 and 1866, the continuous records commencing with the year 1871. The actual index-numbers for the whole period were given in Report No. 1.

3. *Seasonal Fluctuations and Tables of Prices.*—Information as to seasonal fluctuations in wholesale prices was given in Report No. 2 (page 64), and tables of prices of each commodity are given in Appendixes to the Reports of the Labour and Industrial Branch of this Bureau.

4. *Fluctuations in Wholesale Prices, July, 1914, to July, 1922.*—Since the outbreak of war, prices of many commodities have increased considerably. This is shewn in the following table in which the index-numbers are given for each group for the month of July, 1922, taking July, 1914, the last month before the outbreak of war, as base (=1,000) for each group:—

**MELBOURNE WHOLESALE PRICES.—VARIATIONS BETWEEN JULY, 1914,
AND JULY, 1922.**

Particulars.	I. Metals and Coal.	II. Jute, Leather, etc.	III. Agri- cultural Produce, etc.	IV. Dairy Produce.	V. Gro- ceries.	VI. Meat.	VII. Building Mate- rials.	VIII. Chem- icals.	All Groups.
July, 1914	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
July, 1921	1,945	1,107	1,579	1,655	1,881	1,191	2,377	2,198	1,589
July, 1922	1,764	1,555	1,532	1,564	1,810	1,185	1,631	1,991	1,569

§ 14. Control of Trade and Prices.

1. **General.**—Shortly after the outbreak of war, a conference of Federal and State Ministers met to discuss the financial position and other matters, and it was decided that for the purpose of controlling the prices of foodstuffs, each State should introduce *uniform* legislation, since it was obvious that this was necessary in view of all the circumstances. Particulars of the various Acts passed by the State Governments were given in Labour Bulletin No. 6, September, 1914, pages 132-147. The same publication shews that there was great diversity in regard to the operations of the various authorities created in the different States.

As a further outcome of this conference, in addition to the various State Boards and Commissions, a Federal Royal Commission, consisting of the Hon. Alfred Deakin (chairman), the Hon. Dugald Thomson, formerly Minister for Home Affairs, and Mr. G. H. Knibbs, C.M.G., Commonwealth Statistician, was appointed to collect information and report upon such matters as the supply of foodstuffs and other necessities required by and available for Australia during the war and cognate matters. This Commission ceased to exercise its functions after the 30th October, 1914.

2. **Federal Control of Prices.**—In March, 1916, the Federal Government created a Prices Adjustment Board with authority to fix the prices of flour, bread, bran, and pollard. The Board fixed the prices of flour, bran, and pollard in every milling centre in Australia. Prices of bread were fixed in upwards of 1,000 separate towns, after investigations had been made as to the cost of manufacture, distribution, etc. An important judgment of the High Court, as to the powers of Government to fix prices, was obtained as the result of the conviction of a Melbourne suburban baker, by the local magistrate, for selling bread at a higher rate than that fixed by the Prices Adjustment Board. This conviction was appealed against, but the High Court, by a majority decision, affirmed that in matters affecting the safety of Australia the Government, under the War Precautions Act, had plenary powers, and that the decision as to what is necessary rests with the Executive and not with the judicial authority. After this judgment, the scope of the investigations and activities of the Prices Adjustment Board were considerably enlarged, and an exhaustive list of commodities was declared to be "necessary commodities." Later, a Commissioner was appointed in each State to make investigations, and to make recommendations to the Minister as to the necessity for fixing maximum selling prices of various commodities.

Shortly after the appointment of these Commissioners, the members of the Prices Adjustment Board resigned in a body, and the control of prices was placed in the hands of a Minister acting upon the recommendations of State Commissioners. The Commissioner for Victoria acted also as Chief Prices Commissioner. Prices were fixed, by regulations under the War Precautions Act, for a large number of commodities. In May, 1919, the Commonwealth Government released from the control of the Prices Commissioners many articles in which trade had been regulated during the war.

In July, 1919, control ceased of all but a few commodities, the more important of which were butter, cheese, and flour. In August, 1920, the Commonwealth organization for the fixing of prices was abolished. Prices, however, of necessary commodities were not permitted to remain uncontrolled except in Tasmania. In New South Wales, Queensland, and South Australia price fixing was resumed under the authority of Acts already in existence, while in Victoria and Western Australia necessary legislation was passed to enable the Governments of these States to deal with the subject.

The following statement shews the Acts which have been passed, and the Bills introduced by the Governments of the various States for the purpose of controlling prices :—

New South Wales.—In New South Wales, control of prices was resumed in July, 1919, under authority of the "Necessary Commodities Control Act, 1914." In January, 1920, this Act was superseded by the "Necessary Commodities Control Act, 1919," and in December, 1920, by the "Profiteering Prevention Act, 1920," which is still in force.

Victoria.—In Victoria, an Act entitled the "Necessary Commodities Control Act, 1919," was passed. Under authority of this Act a "Fair Profits Commission," consisting of three members, was appointed for the purpose of regulating prices of necessary commodities in Victoria. This Act was repealed in 1920 and the Commission disbanded, thus bringing to an end all State control of prices.

Queensland.—Queensland resumed control of prices in December, 1919, under authority of "The Control of Trade Act, 1914." In March, 1920, this Act was superseded by "The Profiteering Prevention Act, 1920," under which a "Commissioner of Prices" was appointed to control prices in Queensland.

South Australia.—State control was resumed in August, 1919, under authority of the "Prices Regulation Act, 1914." In November, 1919, this Act was superseded by the "Prices Regulation Act, 1919," under which a "Prices Regulation Commission," consisting of three members, was appointed to control prices in South Australia. This Act was repealed in September, 1921, and consequently all control of prices ceased.

Western Australia.—In Western Australia, State control of prices was not resumed until December, 1919, when an Act, entitled "The Prices Regulation Act, 1919," was passed. Under this Act three Commissioners were appointed for the control of prices in Western Australia. In 1920 the "Prices Regulation Act, and Continuance Act, 1920" was passed, and is still in force.

Tasmania.—In Tasmania, a "Necessary Commodities Control Bill, 1919," was introduced, but was not passed.

3. Control of House Rents.—No attempt was made by the Commonwealth Government to control rents generally, but War Precautions Regulations afforded special protection to persons connected with the Defence Forces against increases in rent. During the war the Inter-State Commission conducted an investigation into Housing Accommodation and Rents. Fair Rents Courts are in operation in New South Wales, under the "Fair Rents Act, 1915," and in Queensland under "The Fair Rents Act, 1920." Recently a "Fair Rents Bill" was introduced in Tasmania, but at the time of writing had not become law. In the other States no legislative regulation of house rents is in force.

SECTION XXVIII.

DEFENCE.

§ 1. Military Defence.

1. **Development of State Military Systems.**—A detailed historical account of the Australian defence forces prior to federation will be found in the Official Year Book No. 2, pp. 1075–1080. See also Official Year Book No. 12, p. 999.

The strength of the military forces of the several States prior to federation was generally nearly up to establishment. On 31st December, 1900 (the eve of Federation), it was.—New South Wales, 9,338; Victoria, 6,335; Queensland, 4,028; South Australia, 2,932; Western Australia, 2,696; Tasmania, 2,024; total for Commonwealth, 27,353. Cadets, reservists, and rifle club members are excluded.

2. **Development of Commonwealth System.**—Under the terms of the Constitution Act 1900, the Commonwealth took over control of defence matters in March, 1901. Particulars regarding development up to the initiation of the existing system will be found in Official Year Book No. 12, p. 999.

3. **The Present Military System.**—The defence of Australia at the present time is enacted and prescribed by the Defence Acts 1903–1918 of the Federal Parliament. The provisions of the Acts of 1903, 1904, and the regulations under them contain the main working principles of Australian defence, the necessary expansion being provided for in the amendments of 1909, 1910, 1911, 1912, 1914, 1915, 1917, and 1918. The main provisions of the Acts up to 1912 inclusive will be found in Official Year Book No. 6, pp. 1050 *et seq.* The principal provision of the Act of 1909 is the enactment of compulsory military or naval training, with regulations for registration, enrolment, and exemption. Statutes were passed subsequently, extending or modifying the legislative provisions, removing obstacles and difficulties, and, where necessary, providing machinery. (See also Year Book No. 12, pp. 100 *et seq.*)

(i) *Military Population.* In connexion with the numbers available, the figures of male population are of interest. The total number at cadet age, *i.e.*, between 12 and 18, at the Census of 1911 (3rd April) was about 260,000; at citizen soldier age, *i.e.*, between 18 and 26, 366,000; these latter, with 330,000 at ages between 26 and 35, give 696,000 as the total males at the best period for military service. In addition, there were about 614,000 between 35 and 60.

(ii) *Record for Anthropometric Purposes.* In connexion with the medical inspection it has been arranged that the colour and character of hair, and the colour of eyes of those examined, shall be recorded for statistical purposes.

A systematic record of height, weight and chest measurement of each trainee is also made.

In Official Year Book No. 11, pp. 1203–1209, an analysis is given of the data collected for the year ended 30th June, 1912.

(iii) *Compulsory Training.* By the Defence Acts of 1903 and 1904 all male inhabitants between the ages of 18 and 60 years were made liable to serve in Australia with the defence forces *in time of war*. The more recent Acts make training and service compulsory up to the age of 26 years *in time of peace*. By the Act of 1909 the principle of universal liability to be trained was made law for the first time in any English-speaking community. On 1st January, 1911, by proclamation, compulsory training was established. Details concerning the method of carrying out the scheme, with modifications suggested by the report of Lord Kitchener, will be found in Official Year Book No. 12, pp. 1001, *et seq.*, but owing to limits of space they have been omitted from the present Year Book.

(iv) *Rifle Clubs.* On the 31st December, 1921, there were 1,243 clubs with a membership of 47,632, and in addition 116 miniature rifle clubs having a membership of 4,414. Applications to form rifle clubs are made to the commandant of a district, and must be signed by not less than thirty male persons between the ages of sixteen and sixty, who are required to be natural-born or naturalised British subjects, and are not undergoing training under the universal clauses of the Defence Act. Persons, however, who are temporarily exempted from universal training may be permitted to join rifle clubs during the period of their temporary exemption. Members of rifle clubs must fire an annual course of musketry, but do not undergo any systematic drill.

(v) *Allotment of Units to Divisional Brigade, Battalion, and Training Areas.* The organisation is territorial, and the divisions based upon infantry units. There are 62 battalion areas, forming 15 brigades. The areas have approximately equal numbers of males of citizen soldier age, and each furnishes a battalion of infantry, and a proportion of other troops.

ALLOTMENT OF UNITS TO BRIGADE, BATTALION, AND TRAINING AREAS, 31st DECEMBER, 1921.

	Brigade Areas.	Battalion Areas.							Training Areas.	
State.	No.	No. of Battalions.	Providing the undermentioned units.						Total Nos. in Training Areas.	No.
			Infantry, Engineers, A.S.C. and A.M.C.	Light Horse.		Field Artillery.				
				Squadrons.	Nos.	Batteries.	Nos.			
								Nos.		
New South Wales ..	5	21	30,607	28	3,023	22	4,349	37,979	42	
Victoria ..	5	21	30,438	24	2,594	22	4,259	37,291	44	
Queensland ..	2	8	11,715	16	1,726	9	1,824	15,265	20	
South Australia ..	1	4	6,011	16	1,726	5	988	8,725	13	
Western Australia ..	1	4	5,503	4	429	4	694	6,628	14	
Tasmania ..	1	4	5,494	4	429	4	694	6,617	11	
Total ..	15	62	89,770	92	9,927	66	12,808	112,505	144	

(vi) *Administration and Instruction.* The staff provided for the administration and training of the various arms consists of 232 officers (Staff Corps), 52 quartermasters, and 555 warrant and non-commissioned officers (Australian Instructional Staff).

(vii) *The Royal Military College, Duntroon,* Federal Territory, was established for the purpose of providing trained officers for the permanent forces. Admission is by open competitive examination, a definite number of vacancies being allotted to each State of the Commonwealth on a population basis. The age for admission is between sixteen and nineteen years, though there is a provision in the regulations by which members of the forces over nineteen years of age who pass the prescribed examination, and are approved by the Governor-General-in-Council, may be admitted. The College was opened in June, 1911. The normal college course lasts for four years, and is followed by a tour of duty in England, India, Hong Kong, or Singapore, after which graduates will be appointed to staffs or permanent troops. During the late war the course was temporarily modified. Over 153 staff-cadets were (June, 1918) specially graduated, and appointed to units serving at the front with the Australian and New Zealand forces. No fees are charged for maintenance and instruction, each staff-cadet being credited with an allowance of 7s. 6d. per diem to meet expenses of necessary uniform, books, instruments, etc. The course of instruction comprises both educational and military work, the former being mainly completed in the first two years. Cadets are prepared for light horse, artillery, engineer, and infantry duties.

In December, 1921, the staff numbered—military, 30 ; civil, 12.

(viii) *Railways and Defence.* A War Railway Council, consisting of military and railway officers, was instituted in 1911. Its chief duties are to furnish advice and information regarding railway transport for military purposes, and to secure co-operation between the Commonwealth Defence Department and the States' Railway Departments in regard to concentration and mobilisation of troops. To prevent delay in the transport of troops, particularly that caused by the transshipment of baggage and implements of war, the Council has recommended the adoption of a uniform railway gauge on lines linking up the States' capitals. An Engineer and Railway Staff Corps has been instituted, and numbered 47 officers on 31st December, 1921. Fuller details will be found in Official Year Book No. 6, pp. 1070-1.

(ix) *The Universal Training System in Operation.* Details regarding the various stages in the operation of the system will be found in Official Year Book No. 12, p. 1007, but limits of space preclude their repetition in the present volume.

4. **Strength of Military Forces.**—(i) *Strength in each District.* There was little alteration in the numbers serving in the Australian military forces from the institution of the Commonwealth to the year of the introduction of the compulsory training system. From 1913 to 1918, however, the annual increase was considerable. The following table shews the development :—

STRENGTH OF MILITARY FORCES, 1901, 1913, AND 1917 TO 1921.

(a) District.	1901. (b) 1/3/01	1913. 30/6/13.	1917. 30/6/17.	1918. 30/6/18.	1919. 30/6/19.	1920. 30/6/20.	1921. 31/12/21.
Hd.-Qrs. .. ..	..	(c)277	(c)377	(c)473	(c)362	(c)463	(c)458
1st Q'ld.	4,310	4,625	11,415	15,899	13,938	13,323	14,752
2nd N.S.W.	9,772	12,105	28,783	41,751	37,851	38,558	46,924
3rd Vict.	7,011	10,840	29,131	39,492	34,770	30,762	41,484
4th S. Aus.	2,956	3,228	9,767	12,629	12,867	10,590	12,495
5th W. Aus.	2,283	1,685	4,882	6,333	5,508	4,400	6,540
6th Tas.	2,554	1,777	4,007	5,609	4,585	4,569	5,307
Total	28,886	34,537	88,362	122,186	109,881	102,665	127,960

(a) Approximately coterminous with boundaries of States. (b) Date of Commonwealth taking over the military forces from States. (c) Including cadets at Royal Military College of Australia, Duntroon.

(ii) *Strength of the Various Arms.* The numbers of the different arms of the service on the 31st December, 1921, were as follows :—

ARMS OF THE COMMONWEALTH DEFENCE, 31st DECEMBER, 1921.

Light Horse	8,438	Australian Instructional Corps ..	857
Field Artillery	2,156	Ordnance (including Armament	
Garrison Artillery	10,188	Artificers)	379a
Field Engineers	6,503	Pay Department, Rifle Range	
Signals	3,206	Staff, Rifle Club Staff, and	
Infantry	89,466	Clerical Staff	690a
Army Service Corps	2,256	Royal Military College	88a
Army Veterinary Corps	168	Provost Staff	17
Army Medical Corps	3,246		
Staff Corps	302	Grand Total	127,960

(a) Includes civilians.

(iii) *Classification of Land Forces.* The following table shews the strength of the land forces in each State, classified according to nature of service, on the 31st December, 1921 :—

CLASSIFICATION OF LAND FORCES, (a) 31st DECEMBER, 1921.

Branch of Service.	Army Head-quarters.	1st Military District.	2nd Military District.	3rd Military District.	4th Military District.	5th Military District.	6th Military District.	Total.
Permanently employed ..	(a)458	353	858	977	135	240	158	3,179
Citizen Soldiers ..	..	14,370	45,979	40,409	12,309	6,282	5,140	124,489
Unattached List of Officers ..	..	29	87	98	51	18	9	292
Engineer and Railway Staff Corps ..	..	9	10	11	5	8	4	47
Area Medical Officers ..	..	27	42	44	13	7	11	144
Rifle Clubs ..	..	10,789	12,732	11,025	4,991	4,737	3,364	47,638
Reserve of Officers ..	..	1,384	3,576	3,389	1,003	922	386	10,660
Chaplains ..	..	61	137	151	4	34	21	408
Total ..	458	27,022	63,421	56,104	18,511	12,248	9,093	186,857

(a) Includes Cadets at Royal Military College of Australia, Duntroon.

(iv) *Numbers Serving under Compulsory Provisions.* The next table shews those registered and training under the compulsory system, distinguishing citizen forces, senior cadets, and junior cadets. It has been decided to discontinue junior cadet training as an activity of the Defence Department as from 30th June, 1922 :—

UNIVERSAL TRAINING. — REGISTRATIONS, MEDICAL EXAMINATIONS, EXEMPTIONS, AND NUMBERS SERVING, CITIZEN FORCES, 31st DECEMBER, 1921 (1903 QUOTA).

Military Formation and District.	Total Registrations.	Total Medically Examined.	Number Medically Fit.	Percentage Medically Examined who are Fit.	Number Unfit and Temporarily Unfit.	Percentage Medically Examined who are Unfit and Temporarily Unfit.	Total Exemptions Granted in Training Areas.	Total Number liable for Training.
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1903 QUOTA (TO 31st DECEMBER, 1921).

11th Mixed Brigade (1st M.D.)	3,673	2,741	2,335	85.19	406	14.81	1,461	2,212
1st Division (2nd M.D.)	4,129	3,525	3,194	90.61	331	9.39	959	3,170
2nd Division (2nd M.D.)	6,839	5,669	4,805	84.76	864	15.24	1,877	4,962
3rd Division (3rd M.D.)	4,870	4,112	3,504	85.21	608	14.79	1,282	3,588
4th Division (3rd M.D.)	3,489	2,656	2,260	85.09	396	14.91	1,258	2,231
4th Division (4th M.D.)	2,874	2,323	1,983	85.37	340	14.63	1,042	1,832
13th Mixed Brigade (5th M.D.)	1,989	1,201	1,046	87.09	155	12.91	935	1,054
12th Mixed Brigade (6th M.D.)	1,204	935	780	83.42	155	16.58	467	737
Total ..	29,067	23,162	19,907	85.95	3,255	14.05	9,281	19,786

UNIVERSAL TRAINING.—REGISTRATIONS, ETC.—*continued.*

1895 TO 1902 QUOTAS (TO 31ST DECEMBER, 1920). (a)

Military District.	Total Registrations in Training Areas.								Total.
	Quota, 1895.	Quota, 1896.	Quota, 1897.	Quota, 1898.	Quota, 1899.	Quota, 1900.	Quota, 1901.	Quota, 1902.	
1st ..	4,629	4,391	4,572	4,584	4,915	4,895	4,453	4,260	36,669
2nd ..	9,844	9,947	9,871	9,346	9,607	10,058	9,970	10,451	79,094
3rd ..	5,989	6,147	6,036	6,044	6,747	7,325	7,390	7,248	52,926
4th ..	3,304	3,219	2,958	2,914	3,014	3,225	2,878	2,805	24,318
5th ..	932	1,030	1,107	1,146	1,222	1,178	1,244	1,347	9,206
6th ..	1,237	1,324	1,293	1,144	1,248	1,381	1,222	1,181	10,030
Total ..	25,935	26,058	25,837	25,178	26,753	28,033	27,157	27,292	212,243

(a) Latest particulars available.

SUMMARY OF EXEMPTIONS; SUMMARY OF TRAINEES OF CITIZEN FORCE AGE SERVING WITH SENIOR CADETS AS AT 31st DECEMBER, 1921.

Exemptions (D.A. 138).

Formations.	1903 Quota.	1902 Quota.	1901 Quota.	1900 Quota.	1899 Quota.	Total.
1st Division (2nd M.D.)	959	859	887	1,131	1,029	4,865
2nd Division (2nd M.D.)	1,877	1,918	1,812	2,050	1,867	9,524
3rd Division (3rd M.D.)	1,282	1,301	1,209	1,086	976	5,854
4th Division (3rd M.D.)	1,258	1,121	1,175	1,181	935	5,670
4th Division (4th M.D.)	1,042	955	990	1,287	1,285	5,559
11th Mixed Brigade (1st M.D.) ..	1,461	1,547	1,878	2,173	2,199	9,258
12th Mixed Brigade (6th M.D.) ..	467	451	351	428	358	2,055
13th Mixed Brigade (5th M.D.) ..	935	852	770	717	634	3,908
Totals ..	9,281	9,004	9,072	10,053	9,283	46,693

Trainees of Citizen Force serving with Senior Cadets.

Formations.	1903 Quota.	1902 Quota.	1901 Quota.	1900 Quota.	1899 Quota.	1898 Quota.	1897 Quota.	1896 Quota.	Total.	Number serving under A.M.E. 375.
1st Division (2nd M.D.)	19	23	28	12	9	10	6	..	107	12
2nd Division (2nd M.D.)	39	41	36	21	20	9	11	6	183	13
3rd Division (3rd M.D.)	35	35	33	23	21	13	8	3	171	41
4th Division (3rd M.D.)	20	34	31	21	18	7	11	6	148	43
4th Division (4th M.D.)	27	21	21	16	9	5	3	..	102	56
11th Mixed Brigade (1st M.D.) ..	27	16	28	9	9	14	5	4	112	29
12th Mixed Brigade (6th M.D.) ..	5	7	9	7	2	2	2	2	36	4
13th Mixed Brigade (5th M.D.) ..	9	11	11	5	9	5	4	2	56	25
Totals ..	181	188	197	114	97	65	50	23	915	223

**UNIVERSAL TRAINING.—REGISTRATIONS, EXEMPTIONS, MISSING TRAINEES.
ETC., TO THE 31st DECEMBER, 1921 (1904 TO 1907 QUOTAS).**

SENIOR CADETS.

Formations.	Total Registrations.—Senior Cadets.					Exemptions, D.A. 138, Exempt Trainees on Strength of Areas on 31st December, 1921—Senior Cadets.				
	1907 Quota.	1906 Quota.	1905 Quota.	1904 Quota.	Total.	1907 Quota.	1906 Quota.	1905 Quota.	1904 Quota.	Total.
1st Division (2nd M.D.)	4,063	4,514	4,400	4,319	17,296	279	554	684	912	2,429
2nd Division (2nd M.D.)	6,862	7,287	7,275	7,733	29,157	667	937	1,238	1,682	4,524
3rd Division (3rd M.D.)	4,776	5,098	5,298	5,394	20,566	565	659	894	1,150	3,268
4th Division (3rd M.D.)	3,463	3,825	3,833	3,946	15,067	443	671	886	1,137	3,137
4th Division (4th M.D.)	2,872	3,171	3,171	3,261	12,475	370	548	764	935	2,617
11th Mixed Brigade (1st M.D.)	3,770	4,062	4,205	4,154	16,191	664	917	1,161	1,416	4,158
12th Mixed Brigade (6th M.D.)	994	1,216	1,312	1,300	4,822	109	228	365	392	1,094
13th Mixed Brigade (5th M.D.)	1,985	2,139	2,154	2,095	8,373	248	434	641	811	2,134
Total	28,785	31,312	31,648	32,202	123,947	3,345	4,948	6,633	8,435	23,361

Formations.	Missing Trainees on Strength of Areas on 31st December, 1921.—Senior Cadets.					Number actually in Training on Area Strength on 31st December, 1921.—Senior Cadets.				
	1907 Quota.	1906 Quota.	1905 Quota.	1904 Quota.	Total.	1907 Quota.	1906 Quota.	1905 Quota.	1904 Quota.	Total.
1st Division (2nd M.D.)	8	30	37	87	162	3,703	3,916	3,679	3,318	14,616
2nd Division (2nd M.D.)	6	27	99	195	327	6,119	6,321	5,933	5,854	24,227
3rd Division (3rd M.D.)	30	69	115	185	399	4,170	4,365	4,289	4,057	16,881
4th Division (3rd M.D.)	5	41	67	135	248	2,995	3,112	2,876	2,673	11,656
4th Division (4th M.D.)	2	5	19	19	45	2,467	2,606	2,376	2,306	9,755
11th Mixed Brigade (1st M.D.)	3	10	24	33	70	3,103	3,135	3,020	2,705	11,963
12th Mixed Brigade (6th M.D.)	..	1	5	21	27	885	987	942	887	3,701
13th Mixed Brigade (5th M.D.)	3	8	7	23	41	1,734	1,697	1,506	1,261	6,198
Total	57	191	373	698	1,319	25,176	26,139	24,621	23,061	98,997

**MEDICAL EXAMINATIONS, SENIOR CADETS, 1907 QUOTA, YEAR ENDED
31st DECEMBER, 1921.**

Formations	Number of Examina- tions carried out.	Fit.		Unfit (A.M.R. 389).		Unfit (including those under A.M.R. 375, but excluding those under A.M.R. 389).	
		1907 Quota.	Per- centage.	1907 Quota.	Per- centage.	1907 Quota.	Per- centage.
1st Division (2nd M.D.)	3,963	3,813	96.22	36	.90	114	2.88
2nd Division (2nd M.D.)	6,734	6,219	92.35	43	.64	472	7.01
3rd Division (3rd M.D.)	4,987	4,574	91.72	12	.24	401	8.04
4th Division (3rd M.D.)	3,360	3,065	91.22	55	1.64	240	7.14
4th Division (4th M.D.)	2,861	2,619	91.54	93	3.25	149	5.21
11th Mixed Brigade (1st M.D.) ..	3,533	3,254	92.10	26	.74	253	7.16
12th Mixed Brigade (6th M.D.) ..	1,007	924	91.76	9	.89	74	7.35
13th Mixed Brigade (5th M.D.) ..	1,917	1,808	94.31	51	2.66	58	3.03
Total ..	28,362	26,276	92.64	325	1.15	1,761	6.21

SUMMARY OF MEDICAL EXAMINATIONS AS AT 31st DECEMBER, 1921.

JUNIOR CADETS.

Formations	Total Number Medically Examined.			Number Fit.	Percen- tage who are Fit.	Number Unfit.	Percen- tage who are Unfit.
	Quota, 1908.	Quota, 1909.	Total.				
1st Division (2nd M.D.)	4,321	3,810	8,131	8,046	98.96	85	1.04
2nd Division (2nd M.D.)	6,249	6,480	12,729	12,511	98.29	218	1.71
3rd Division (3rd M.D.)	3,737	3,957	7,694	7,588	98.62	106	1.38
4th Division (3rd M.D.)	3,114	3,542	6,656	6,515	97.88	141	2.12
4th Division (4th M.D.)	2,763	2,781	5,544	5,461	98.50	83	1.50
11th Mixed Brigade (1st M.D.) ..	2,464	2,530	4,994	4,877	97.65	117	2.35
12th Mixed Brigade (6th M.D.) ..	966	839	1,805	1,762	97.62	43	2.38
(a) 13th Mixed Brigade (5th M.D.) ..	1,974	1,944	3,918	3,809	97.22	109	2.78
Total ..	25,588	25,883	51,471	50,569	98.25	902	1.75

(a) As at 30.6.21.

§ 2. Naval Defence.

1. Naval Defence under the States.—Information regarding naval defence systems prior to 1901 will be found in Official Year Book No. 12, p. 1011, but considerations of space preclude its insertion in the present volume.

2. Development of Commonwealth System from 1901.—Australian defence, in both its branches (naval and military), passed to the Commonwealth in 1901. Prior to 1905 a naval officer commanding administered the naval forces under the Minister. When the Council of Defence was established in that year, the Naval Board was constituted, and took over the administration of the Commonwealth naval forces, thereby ensuring continuity of policy and administration.

3. **The Present System.**—(i) *Australian Naval Policy.* An outline of the development of Australian naval policy will be found in Official Year Book No. 3, pp. 1060–1061, and in No. 12, p. 1012.

(ii) *The Building of the Australian Fleet.* Skilled artisans were despatched from Australia to gain practical experience in naval shipbuilding, construction proceeding both in Britain and Australia. Sailors of all ratings were also trained for the Commonwealth service. The first instalment of the Australian fleet unit consisted of two torpedo boat destroyers, of British construction, commissioned in September, 1910, and named *Parramatta* and *Yarra*. A third destroyer, the *Warrego*, was shipped to Sydney in parts, and was re-erected at the Commonwealth dockyard, Cockatoo Island, Sydney, and commissioned on 1st June, 1912. A description of these and the other vessels of the fleet will be found in Official Year Book No. 6, pp. 1066–7.

The battle cruiser *Australia* was commissioned in June, 1913, and arrived in Australian waters in the following September. Two light cruisers, the *Melbourne* and *Sydney*, arrived in Australian waters in 1913, and two submarines in 1914. Two additional cruisers, the *Brisbane* and the *Adelaide*, and three more destroyers, the *Swan*, *Huon* and *Torrens*, were built at the Commonwealth Dockyard, Sydney.

(iii) *Modifications Adopted and Proposed.* Certain modifications have been made in the original scheme. These have been prepared in tabular form, and are as follows:—

FLEET UNIT.—ORIGINAL ESTIMATED COST.

(Imperial Defence Conference, 1909.)

1 Battle cruiser	.. .. .	£2,000,000
3 Protected cruisers, £350,000 each	.. .. .	1,050,000
6 Destroyers (including 3 ordered before the Conference), £80,000 each	.. .. .	480,000
3 Submarines, "C" class, £55,000 each	.. .. .	165,000
Total	.. .. .	<u>£3,695,000</u>

AMENDED ESTIMATED COST.

(Consequent on Alteration of Type of Vessels on Admiralty Recommendation.)

1 Battle cruiser	.. .. .	£2,000,000
3 Protected cruisers, £450,000 each	.. .. .	1,350,000
6 Destroyers, £80,000 each	.. .. .	480,000
2 Submarines, "E" class, £105,000 each	.. .. .	210,000
Total	.. .. .	<u>£4,040,000</u>

LATER ESTIMATED COST OF FLEET UNIT, TOGETHER WITH COST OF VESSELS NOT INCLUDED IN ORIGINAL FLEET UNIT.

1 Battle cruiser	.. .. .	£1,705,000
(a) 3 Protected cruisers	.. .. .	1,400,000
(a) 6 Destroyers	.. .. .	653,000
2 Submarines	.. .. .	233,500
Auxiliaries—		
1 Submarine depot ship	.. .. .	£160,000
1 Oil tank vessel	.. .. .	120,000
4 Oil fuel storage vessels (built in Australia)	.. .. .	75,766
4 Hulks	.. .. .	25,000
		<u>380,766</u>
Total	.. .. .	<u>£4,372,266</u>

The following additional amount has been approved for new construction outside the original fleet unit and for increase in cost over estimate

Total	<u>£6,845,871</u>
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(a) Extra cost of building certain of these vessels in Australia is responsible for increase.

(iv) *Expenditure on Fleet Construction for the Royal Australian Navy.* The following is a statement of expenditure out of sums appropriated for construction of fleet :—

EXPENDITURE ON FLEET CONSTRUCTION, 1909 TO 1922.

Year.	Appropriation.						Expenditure.
							£
1908-9	..	Act No. 19 of 1908	..	..	..	..	24,855
1909-10	..	Act No. 19 of 1908	..	..	..	..	223,959
1909-10	..	Division No. 11A, New Works, etc.	..	..	..	..	60,000
1910-11	..	Act No. 18 of 1910	..	..	..	..	285,863
1910-11	..	Division No. 12, New Works, etc.	..	..	..	..	850,000
1911-12	..	Act No. 18 of 1910	..	..	..	..	1,108,494
1912-13	..	Act No. 18 of 1910	..	..	..	..	524,037
1912-13	..	Division No. 10, New Works, etc.	..	..	..	..
1913-14	..	Division No. 12, New Works, etc.	..	..	..	..	637,606
1914-15	..	Division No. 13, New Works, etc.	..	..	..	..	467,296
1915-16	..	Division No. 13, New Works, etc.	..	..	..	..	396,073
1916-17	..	Division No. 17, New Works, etc.	..	..	..	..	374,249
1917-18	..	Act No. 30 of 1917, New Works, etc.	..	..	..	..	355,397
1918-19	..	War Loan Act No. 23 of 1917	..	..	..	..	533,694
1919-20	..	War Loan Act No. 13 of 1918	..	..	..	..	366,695
1920-21	..	Division No. 7, New Works, etc.	..	..	..	..	301,284
1921-22	..	Division No. 11, New Works, etc.	..	..	..	..	336,369
Total							6,845,871

(v) *Visit and Report by Admiral Sir Reginald Henderson.* At the invitation of the Government, Admiral Sir Reginald Henderson visited Australia to advise upon naval matters generally. A summary of his report will be found in Official Year Book No. 6, pp. 1067-8.

(vi) *The Compact with the Imperial Government.* Up to 1921 the Australian Government built its navy according to the terms of an official paper (cd. 5746-2) submitted to the Imperial Conference held in London in 1911, and on the plan formulated by Admiral Henderson (after an inspection of Australia's capitals and other ports and coast line in 1911). There is no formal contract or agreement between the British and the Commonwealth Governments. The last actual agreement was that of 1903, already described in Year Book No. 12 (see p. 1012). Before the expiration of the time for which this agreement was made the Commonwealth began the work of fleet construction. Up to the year 1911-12, £200,000 was annually paid. For 1912-13, £175,000 was set down in the estimates, and £166,600 paid. The Commonwealth Parliament amended the *Naval Agreement Act 1903*, by No. 10 of 1912 (*Naval Agreement Act 1912*), providing that the Governor-General may, from time to time, arrange with the Imperial Government for the reduction of the Australian Squadron, and for reduction in the naval subsidy. No amount under "Naval Agreement Act" will be found in the estimates for 1913-14 and later years. Some departures were made from Admiral Henderson's recommendations, but generally they were adopted.

The Washington Conference of 1921 has had a marked effect on Naval Defence schemes, and all warship building and naval base construction has been suspended.

(vii) *Naval College.* A naval college has been established at Captain's Point, Jervis Bay, consisting of numerous buildings necessary for the training of naval officers. The course is similar to that carried out in naval colleges in England. In December, 1920, there were 96 cadet midshipmen under training. There were also 17 officers, including naval instructors, and 68 members of the ship's company in residence at the college. A boy whose thirteenth birthday falls in the year in which the entrance examination is held is eligible to compete provided he is the son of natural-born or naturalised British subjects. From amongst those qualified the Selection Committee chooses the number required. The Commonwealth Government bears the whole expense of uniforms, victualling, travelling, as well as that of the educational course.

(viii) *Training Ships.* H.M.A.S. *Tingira*, moored in Rose Bay, Sydney, was commissioned in April, 1912, to train boys for the *personnel* of the Royal Australian Navy. The age of entry is fourteen and a half to sixteen years. Only boys of very good character and physique are accepted, after a strict medical examination. The boys must engage to serve until they reach the age of 25. The training lasts about one year, and they are then drafted to a sea-going warship of the Australian fleet. Recruiting has been satisfactory, there being 123 boys under training on 15th June, 1922.

(ix) *The Naval Station of the Commonwealth of Australia.* The following are the limits of the Naval Station which, since 1st June, 1919, have been controlled by the Commonwealth Government, acting through the Naval Board:—North: From a point in 95 degrees East longitude and 13 degrees South latitude along that parallel to the Eastward to the meridian of 120 degrees East longitude; thence along that meridian to the Northward to 11 degrees South latitude; thence in an easterly direction to the Southern termination of the Eastern boundary of Dutch New Guinea in about 141 degrees East longitude; thence along the meridian of the boundary to the Northward to the Equator; thence along the Equator to the eastward to 170 degrees East longitude. East: From a point on the Equator on the meridian of 170 degrees East longitude along that meridian to the Southward to 32 degrees South latitude; thence along that parallel to the Westward to the meridian of 160 degrees East longitude; thence along that meridian to the South Pole. South: The South Pole. West: From the South Pole by the meridian of 80 degrees East longitude to the Northward to 30 degrees South latitude; thence along that parallel to the Eastward to the meridian of 95 degrees East longitude; thence along that meridian to the Northward to 13 degrees South latitude.

(x) *Visit and Report of Lord Jellicoe.* At the invitation of the Government, Admiral of the Fleet Lord Jellicoe visited Australia in May, 1919, to advise the Dominion Authorities whether, in the light of the experience of the war, the scheme of naval organization which had been adopted or may have been in contemplation, required consideration, either from the point of view of the efficiency of that organization for meeting local needs, or from that of securing the greatest possible homogeneity and co-operation between all the Naval Forces of the Empire; and, should the Dominion Authorities desire to consider how far it is possible for the Dominions to take a more effective share in the Naval Defence of the Empire, to give acceptance from the Naval point of view in drawing up a scheme for consideration.

The subjects, on which advice was requested, were:—The Naval strategical problem affecting Australian waters and the Pacific; future composition of the Australian Navy; Naval Bases and requirements in the Pacific and East Indian Waters; general organization and administration of the Naval Forces.

The decisions of the Washington Conference of 1921 have now to be taken into consideration in connexion with Naval Defence schemes for the Pacific.

4. Vessels and Personnel of the Australian Navy.—The following table shews the vessels of the Royal Australian Navy :—

LIST OF SHIPS OF THE ROYAL AUSTRALIAN NAVY, JUNE, 1922.

Vessel.	Description.	Displacement.	Power.
		Tons.	H.P.
<i>Adelaide</i>	Light Cruiser	5,500	25,000
<i>Anzac</i>	Flotilla Leader	1,660	36,000
<i>Australia</i>	Battle Cruiser	18,800	44,000
<i>Brisbane</i>	Light Cruiser	5,400	25,000
<i>Cerberus</i>	Gunboat	920	1,600
<i>Countess of Hopetoun</i>	First Class Torpedo Boat ..	93	1,100
<i>Encounter</i>	Depot Ship	5,880	12,500
<i>Franklin</i>	Yacht	370	350
<i>Geranium</i>	Sloop	1,250	2,000
<i>Huon</i>	T.B. Destroyer	700	11,300
<i>Mallow</i>	Sloop	1,200	1,800
<i>Marguerite</i>	"	1,250	2,200
<i>Melbourne</i>	Light Cruiser	5,400	25,000
<i>Parramatta</i>	T.B. Destroyer	700	9,000
<i>Pioneer</i>	Light Cruiser	2,200	7,000
<i>Platypus</i>	Submarine Depot Ship	3,460	2,611
<i>Platypus II.</i>	Turret Ship	3,480	1,660
<i>Stahwart</i>	T.B. Destroyer	1,075	27,000
<i>Success</i>	"	1,075	27,000
<i>Swan</i>	"	700	10,000
<i>Swordsmen</i>	"	1,075	27,000
<i>Sydney</i>	Light Cruiser	5,400	25,000
<i>Tasmania</i>	T.B. Destroyer	1,075	27,000
<i>Tattoo</i>	"	1,075	27,000
<i>Tingira</i>	Boys' Training Ship	1,800	..
<i>Torrens</i>	T.B. Destroyer	700	10,000
<i>Warrego</i>	"	700	9,000
<i>Yarra</i>	"	700	9,000
FLEET AUXILIARIES—			
<i>Biloela</i>	Fleet Collier	5,700	2,300
<i>Kurumba</i>	Fleet Oiler	3,970	..
SUBMARINES, "J" CLASS—			
1, 2, 3, 4, 5, 7 .. ..	.. ..	1,900	1,400
		(submerged)	
		1,170	3,600
		(on surface)	

Practically the whole of this Fleet was assembled in Port Phillip on 28th May, 1920, and was reviewed there by H.R.H. the Prince of Wales.

Besides the Sea-going Forces, there is a R.A.N. Reserve, which is composed of Citizen Naval Trainees. The *personnel* of the Sea-going Forces, which was originally largely composed of Imperial Officers and men, is now mainly Australian in character and will become more so as time goes on. Strength of Naval Forces at latest available date was :—

STRENGTH OF NAVAL FORCES (PERMANENT AND RESERVES),
15th JUNE, 1922.

Description of Force.	Numbers Borne.		
	In Training.	Officers.	Men.
Royal Australian Navy (Seagoing) .. ..	..	406	3,566
Cadet Midshipmen undergoing training at R.A.N. College ..	48	..	..
Boys undergoing training on H.M.A.S. <i>Tingira</i>	123	..	..
Royal Australian Naval Reserve (Seagoing) .. ..	..	43	..
Royal Australian Naval Reserve .. ..	..	109	3,657

§ 3. Air Defence.

A Royal Australian Air Force has been formed, and is administered by a Board consisting of two Air Force members and a Finance member. To this Force is entrusted the air defence of the Commonwealth, the training of *personnel* for co-operation with the naval and military forces, and the refresher training of pilots engaging in civil aviation. The present establishment of the Force includes the following units:—

- (a) Head-Quarters, Royal Australian Air Force, with representation at the Air Ministry in London; and
- (b) One Station at which are located an Aircraft Depot with store and repair facilities, a Flying Training School, and one Squadron of Citizen Force *personnel* with a nucleus of permanent *personnel*.

In deciding all matters of policy the Minister is assisted by a representative Air Council, which includes officers of the Navy, Army, and Air Force, and the Controller of Civil Aviation.

§ 4. Expenditure on Defence.

1. **Expenditure, 1916-17 to 1922-23.**—The following table gives the expenditure on Defence from 1916-17 to 1921-22, and the estimate for 1922-23.—

EXPENDITURE ON DEFENCE, 1916-17 TO 1922-23.

Particulars.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	1921-22.	1922-23. (Estimate)
	£	£	£	£	£	£	£
Naval Forces	1,442,405	1,466,164	1,546,586	1,611,325	2,429,852	2,275,590	2,088,900
Military Forces	1,348,593	1,088,351	1,196,028	946,409	1,340,719	1,400,078	1,356,229
Air Services	12,156	14,660	4,151	26,813	(d)62,888	(d)146,820	(d)251,042
Naval Works	594,134	44,377	8,120	7,663	24,809	80,075	155,952
Construction of Fleet	374,249	(a)	(b)	(b)	301,284	336,369	50,000
Military—Additions, New Works, Military Stores, etc.	347,930	133,578	88,897	89,008	693,255	960,711	195,200
Air Services—Works .. ..	..	..	..	19,991	(d)77,040	180,604	115,465
Rent, Repairs and Maintenance	84,283	73,678	79,221	78,461	108,728	(e)110,571	(e)111,525
Sites for Defence purposes ..	129,809	(a)	(a)	(a)	(a)	..	..
Proportion of Public Works Staff, Salaries and Contingencies	19,200	17,715	31,880	28,962	26,723	28,318	28,600
Supervision of Public Works by State Officers	2,831	1,188	1,630	1,801	2,094	1,994	2,000
Interest on Transferred Properties	129,570	129,548	136,699	130,470	122,325	93,586	97,940
Audit	12,389	22,565	10,118	16,104	17,298	15,032	14,525
Pensions and Retiring Allowances	1,089	1,277	1,391	1,202	2,162	2,633	2,597
Defence Officers' Compensation (including Navy) ..	..	..	..	..	..	300,000	..
Miscellaneous	2,801	11,455	35,530	50,572	53,753	22,349	117,887
	4,501,439	3,004,556	3,140,251	3,008,781	5,262,930	5,964,730	4,587,862
Buildings, Works and Sites provided from Loan Fund (excluding construction of Fleet) .. ..	..	(c)717,088	414,430	566,853	401,286	345,987	266,279
War Expenditure and War Gratuity	61,541,566	66,958,360	83,447,990	70,822,326	65,469,800	41,105,913	42,806,334
Total Expenditure on Defence	66,043,005	70,680,004	87,002,671	74,397,960	71,134,016	47,416,630	47,160,475

(a) Provided from Loan Funds for Works. The expenditure in respect of Construction of the Fleet in 1917-18, 1918-19, and 1919-20, was £355,397, £533,694, and £366,696 respectively.
 (b) Provided from War Loan Fund. See previous note. (c) Includes Construction of Fleet, £355,397.
 (d) Includes Civil Aviation. (e) Includes Rent of Aerodromes, etc.

2. Expenditure for Defence Purposes, 1901-2 to 1921-22.—In the following table Defence expenditure for the whole Commonwealth period 1901-2 to 1921-22, and the estimate for the year 1922-23 are given :—

ANNUAL DEFENCE EXPENDITURE.

Year.	Naval.		Military.		Air.		Total Defence Expenditure. (a) (b)
	Under Ordinary Votes and Appropriations.	Total Naval.	Under Ordinary Votes and Appropriations.	Total Military.	Under Ordinary Votes and Appropriations.	Total Air.	
	£	£	£	£	£	£	£
1901-2 ..	178,819	178,819	777,620	780,260	..	..	959,079
1902-3 ..	149,701	149,701	595,115	600,652	..	..	750,353
1903-4 ..	240,005	240,091	502,517	615,673	..	..	855,764
1904-5 ..	200,394	206,036	533,945	728,562	..	..	934,598
1905-6 ..	250,273	252,016	548,439	718,329	..	..	970,345
1906-7 ..	255,120	256,066	585,516	779,729	..	..	1,035,795
1907-8 ..	259,247	510,205	634,579	824,539	..	..	1,334,744
1908-9 ..	263,207	267,262	686,365	783,330	..	..	1,050,592
1909-10 ..	269,051	329,739	928,393	1,205,666	..	..	1,535,405
1910-11 ..	303,493	1,465,034	1,092,305	1,540,992	..	..	3,006,026
1911-12 ..	461,546	1,634,466	1,667,103	2,443,382	..	4,000	4,081,848
1912-13 ..	806,881	1,660,616	1,805,806	2,680,466	3,072	5,223	4,346,305
1913-14 ..	1,006,424	1,987,101	1,944,297	2,756,404	3,012	8,795	4,752,300
1914-15 ..	1,526,351	6,821,091	1,477,878	12,715,471	6,742	18,217	19,554,779
1915-16 ..	1,550,012	8,470,036	1,512,343	37,444,879	10,503	46,162	45,961,077
1916-17 ..	1,510,542	6,641,249	1,544,775	59,364,998	12,156	36,758	66,043,005
1917-18 ..	1,544,590	3,766,174	1,283,063	66,884,734	14,660	29,096	70,680,004
1918-19 ..	1,650,375	9,435,658	1,392,859	77,451,327	4,151	135,686	87,002,671
1919-20(b) ..	1,728,327	5,645,374	1,163,792	68,102,458	26,813	Cr. 34,880	73,712,952
1920-21(b) ..	2,550,609	3,658,589	1,615,933	59,300,435	62,888	139,926	63,098,950
1921-22(b) ..	2,330,965	3,167,736	2,126,006	41,771,436	155,082	285,636	45,224,858
1922-23(b) ..	2,200,042	2,713,409	1,871,203	41,533,039	266,412	413,997	44,660,475

(a) During the war years and subsequently, war expenditure and war expenditure on works included in total. (b) Not including War Gratuity (see p. 930).

NOTE.—In the year 1900-1 the approximate Defence Expenditure made by the States was :—

Ordinary Services	£800,000
Works, Arms, Equipment, etc. ..	200,000
Total	£1,000,000

3. Special War Expenditure.—The special war expenditure for the years 1914-15 to 1921-22 and the estimate for 1922-23 will be found on page 929.

4. Expenditure in Various Countries.—The total expenditure on defence and the expenditure per inhabitant in various countries according to estimates made immediately prior to the late war, were as follows :—

ESTIMATED PRE-WAR EXPENDITURE ON DEFENCE.—VARIOUS COUNTRIES.

Country.	Year.	Army.	Navy	Total.	Per Inhabitant.
		£	£	£	s. d.
Great Britain ..	1913-14	28,220,000	46,309,000	74,529,000	32 3
Germany ..	1913-14	73,833,000	24,012,000	97,845,000	30 2
France ..	1913	38,286,000	18,452,000	56,738,000	28 7
Italy ..	1913-14	14,546,000	9,068,000	23,614,000	13 7
Austria-Hungary ..	1913	16,500,000	3,100,000	19,600,000	7 8
Switzerland ..	1913	1,772,000	..	1,772,000	9 1
Russia ..	1913	64,136,000	22,817,000	86,953,000	10 5
Spain ..	1913	6,391,000	2,827,000	9,218,000	9 3
Portugal ..	1913-14	2,190,000	851,000	3,041,000	10 3
Norway ..	1913-14	867,000	337,000	1,204,000	9 11
Sweden ..	1913	3,063,000	1,447,000	4,510,000	16 0
Denmark ..	1913-14	1,081,000	544,000	1,625,000	11 5
Holland ..	1913	2,780,000	1,678,000	4,458,000	14 6
Belgium ..	1913	3,260,000	..	3,260,000	8 7
United States ..	1913-14	35,073,000	29,464,000	64,537,000	14 0
Canada ..	1912-13	1,872,000	..	1,872,000	5 2
Japan (a) ..	1913-14	7,815,000	4,224,000	12,039,000	3 6
Australia ..	1913-14	3,291,000	2,456,000	5,747,000	23 7

(a) Excluding extraordinary expenditure.

§ 5. Industrial Establishments and Remount Depot.

1. Commonwealth Factories.—There are seven factories established under the authority of the Defence Act in connexion with the Defence Department. The Commonwealth Harness, Saddlery, and Leather Accoutrements Factory at Clifton Hill, Victoria, was opened in September, 1911. On 30th June, 1921, there were 76 persons employed, including 14 females. A large quantity of harness and saddlery, leather and canvas equipment has been turned out for the Defence and other Commonwealth and State Departments. At the Cordite Factory at Maribyrnong, Victoria, cordite is manufactured for the cartridges required for military purposes. On 30th June, 1921, the employees numbered 99. The Acetate of Lime Factory at Bulimba, Brisbane, which manufactures acetate of lime (a raw material used in the production of acetone), commenced operations in September, 1918. On 30th June, 1921, there were 55 persons employed. This factory is worked in conjunction with the Cordite Factory. The Clothing Factory at South Melbourne, Victoria, commenced operations on 3rd January, 1912. Since 1st July, 1912, a satisfactory output has been maintained. The number of employees on 30th June, 1921, was 361, of whom 313 were females. The establishment is able to supply the whole of the uniform clothing required for the Defence Forces and the Postmaster-General's Department, and much of that required by State Departments and local governing bodies. The Small Arms Factory at Lithgow, New South Wales, was opened on 1st June, 1912. The first instalment of Australian arms was delivered in May, 1913. Employees numbered 829 on 30th June, 1921. The Commonwealth Woollen Cloth Factory was established at Geelong, Victoria, for the supply of uniform materials and woollen fabrics, and commenced operations in the latter part of 1915; 359 persons, including 171 females, were employed on the 30th June, 1921.

2. Expenditure.—The expenditure up to 30th June, 1921, on land, buildings, machinery and plant, factory fittings and furniture in connexion with the factories now in operation was approximately as follows:—Small Arms Factory, £357,156; Cordite Factory, £276,263; Clothing Factory, £36,324; Harness Factory, £20,493; Woollen Cloth Factory, £204,083; Acetate of Lime Factory, £126,219.

3. Remount Depot.—The Act of 1910 authorised the establishment and maintenance of remount depots, farms, and stations for the breeding of horses. Up to the present nearly 2,000 remounts have been purchased. They are primarily to supply the requirements of the Field Artillery Batteries, but are also available for the use of other mounted units. Remount depots have been purchased or are leased in each of the military districts, and veterinary hospitals have also been established in the larger States. In Victoria and South Australia stables have been built. A remount section of the Army Service Corps has been formed for the purpose of breaking, training and looking after remounts generally. These sections were so organised as to be capable of rapid expansion in case of emergency, and when war was declared in 1914 little difficulty was experienced by the Remount Service in coping with the enormous task of obtaining and training horses for the mounted units of the A.I.F. and in providing for the shipment of horses to Egypt and India as required.

§ 6. Australian Contingents.

1. *General*.—In previous issues of the Year Book an account was given of the composition, etc., of the Australian contingents despatched for service in the New Zealand and Sudan Campaigns, in South Africa, China, and the Great War of 1914-18 (see Official Year Book No. 12, pp. 1019 *et seq.*). Owing to limits of space, however, this information has not been repeated in the present issue.

Up to the 31st March, 1921, the troops which had been despatched from Australia for service in the various theatres of the Great War numbered 329,883.

(i) *Casualties in Australian Imperial Force*.—The number of casualties announced by the Defence Department to 31st March, 1922, was as follows:—

CASUALTIES IN AUSTRALIAN IMPERIAL FORCE TO 31st MARCH, 1922.

Particulars.						All Ranks.
Deaths from wounds or disease	..	..	..	..	..	(a)59,342
Casualties from wounds or gas (gross total)	..	..	..	..	..	163,819
Sick (gross total)	..	..	..	..	..	87,957
Casualties not specified	..	..	..	..	..	(a)218
Total	..	..	..	..	..	314,336

(a) These figures represent actual net totals after all corrections consequent upon erroneous and later advice, etc., have been taken into account. The wounded and sick represent totals reported by cable and are in excess of the actual number of men affected, because many were admitted to hospital more than once.

(ii) *The Expeditionary Force in the Pacific*. The operations against the German colonial troops resulted, within two months, in the capture of the whole of the enemy's possessions in the Pacific. The German Pacific wireless chain was broken. Samoa was occupied by a force from New Zealand. The German Pacific Protectorate (*Das Deutsches Südsee Schutzgebiet*) was terminated. It comprised German New Guinea, the Bismarck Archipelago, the two northernmost islands of the Solomon group (Bougainville and Buka), the choicest islands of the Samoan group (now occupied by New Zealand), the Marshall Islands (including Nauru), the Carolines, Pelews and Ladrões (except Guam, which belongs to America). Of these groups, the Bismarck Archipelago is the most important. It includes New Britain, New Ireland, New Hanover, and several small groups and islands, of which the Admiralty, Hermit, Ninigo, Witu and St. Matthias groups are the principal. All former German islands south of the Equator (except the Samoan group) are now occupied and administered by the Commonwealth. Those north of the Equator are under Japanese administration.

(iii) *The Australian Navy in the War*. In Year Book No. 12, pp. 1025 *et seq.*, an account was given of the part played by the Australian Navy in the War, but owing to limitations of space it has not been possible to reproduce this matter in the present issue.

(iv) *Special War Expenditure, 1914-22.* The special expenditure for war purposes during each of the years 1914 to 1922 was as set out hereunder:—(See also Table on p. 926.)

SPECIAL WAR EXPENDITURE, 1914-15 TO 1922-23.

Heading.	1914-15.	1915-16.	1916-17.	1917-18.	1918-19.
	£	£	£	£	£
Special expenditure on Expeditionary and Australian Forces—					
Naval	3,527,904	5,093,530	2,737,890	..	5,443,599
Military	9,474,537	31,938,864	40,408,490	50,957,776	48,148,442
Interest due to Government of United Kingdom for maintenance of Australian troops at the Front .. .. .	..	..	..	..	3,430,000
Interest on loans from Government of United Kingdom for War purposes	36,489	843,893	2,082,258	2,477,288	2,377,690
Sinking Fund on loans from Government of United Kingdom .. .. .	..	..	477,743	245,410	245,410
Interest on Australia's War Indebtedness to Government of United Kingdom .. .. .	..	..	..	..	..
Payment in reduction of principal of Australia's War indebtedness to the Government of the United Kingdom .. .. .	..	..	..	..	..
Interest on Commonwealth War Loans	78,656	1,014,821	2,738,673	4,574,817	7,709,771
Interest on War Gratuity Bonds and Treasury Bills for War Gratuity purposes .. .. .	..	200,777	689,384	515,781	955,303
Sinking Funds on loans for War purposes .. .. .	..	250,000	..	200,000	1,300,000
Amount transferred to Trust Fund, Australian Soldiers' Repatriation Account .. .. .	..	129,273	1,149,242	2,772,077	4,827,368
War Pensions (including Administrative expenses) .. .. .	..	..	20,000	20,000	1,047,963
Advances to States and Territories for purpose of settling returned soldiers on the land .. .. .	..	..	..	..	5,000
Expenditure under War Service Homes Act 1918 .. .. .	..	..	..	..	..
Trading Vessels	153,973	318,285	686,700	999,197	272,608
War Gratuity .. .. .	..	..	..	..	..
Miscellaneous	1,839,776	1,412,003	4,551,186	4,196,014	7,684,836
	15,111,335	41,201,446	61,541,566	66,958,360	83,447,990

Heading.	1919-20.	1920-21.	1921-22.	1922-23. Estimate.
	£	£	£	£
Special expenditure on Expeditionary and Australian Forces—				
Naval	2,451,078	698,052	157,884	175,000
Military	18,022,258	1,019,110	Cr. 57,806 (b)	165,893
Interest due to Government of United Kingdom for maintenance of Australian troops at the Front	1,816,000	1,743,264	(a)	(a)
Interest on loans from Government of United Kingdom for War purposes	2,377,656	2,290,460	(a)	(a)
Sinking Fund on loans from Government of United Kingdom	245,410	490,820	(a)	(a)
Interest on Australia's War Indebtedness to Government of United Kingdom .. .. .	..	..	4,529,971	4,484,187
Payment in reduction of principal of Australia's War indebtedness to the Government of the United Kingdom .. .. .	..	..	..	..
Interest on Commonwealth War Loans	10,268,246	11,270,983	12,324,208	12,829,000
Interest on War Gratuity Bonds and Treasury Bills for War Gratuity purposes	224	1,140,361	1,221,514	1,110,000
Sinking Funds on loans for War purposes	1,067,402	2,678,000	1,987,640	1,095,000
Amount transferred to Trust Fund, Australian Soldiers' Repatriation Account	5,170,737	3,384,845	1,957,835	1,570,000
War Pensions (including Administrative expenses)	6,032,270	7,389,739	7,028,329	6,750,000
Advances to States and Territories for purpose of settling returned soldiers on the land	10,155,675	15,182,878	6,482,384	6,000,000
Expenditure under War Service Homes Act 1918	4,718,158	6,594,164	1,247,466	4,000,000
Trading Vessels	143,274	527	6,612	2,000
War Gratuity	685,008	8,635,066	2,191,772	2,500,000
Miscellaneous	7,668,930	3,551,531	1,015,744	560,631
	70,822,326	65,469,800	41,105,913	42,806,334

(a) An agreement has been entered into between Australia and the Government of the United Kingdom whereby war debts due to the latter by Australia have been funded, and the amount due for maintenance of Australian troops at the front and loans made to Australia for war purposes are included in this agreement. Provision is also made for half-yearly payments in reduction of the principal of Australia's War indebtedness to the Government of the United Kingdom.

(b) Credit resulting from repayment of expenditure made in previous years.

§ 7. War Gratuity.

In accordance with the War Gratuity Acts 1920 (assented to 30th April, 1920, and 29th May, 1920), a bonus, payable as an overseas war service gratuity, is authorized for sailors and soldiers who served in the Great War. The gratuity is in the nature of a free gift from the Commonwealth, in recognition of honorable services during the War, and is not claimable or recoverable as a matter of right. For members of the Naval Forces who served in a sea-going ship; members of the Naval and Military Expeditionary Force to New Guinea; members of the Australian Imperial Force who embarked from Australia on or before 10th November, 1918 (day preceding the Armistice); and Imperial reservists who served, the rate of gratuity is 1s. 6d. per day for the qualifying period. For members of the Naval Forces who did not serve in a sea-going ship; and members of the Military Forces who did not embark for overseas service the rate is 1s. per day. The qualifying period of service is that between the outbreak of War (4th August, 1914) and the Armistice (11th November, 1918). The period for which payment is made to individuals commenced—for sailors, from the date of taking up duty on a sea-going ship; for soldiers who served overseas, from the date of embarkation (or the first of them, if more than one); the terminating date in all cases being the date of Declaration of Peace (28th June, 1919). For sailors not having had service in a sea-going ship, and for soldiers who did not embark, or who embarked after 10th November, 1918, payment is made from date of taking up duty to date of discharge or Declaration of Peace. Deductions may be made for misconduct on service, and serious crime, military or civil, involves disqualification.

The gratuity was paid in Treasury bonds, maturing not later than 31st May, 1924, and bearing interest at $5\frac{1}{4}$ per cent. In necessitous cases, payment was made in cash, when desired by the person entitled. The first gratuities were made available about the beginning of June, 1920. By the 2nd July, 1921, the sum of £5,157,110 was paid in cash, and bonds to the value of £20,585,746 were issued. The gratuities will total 360,000, the amount being estimated at £30,000,000.

§ 8. Special Defence Legislation.

1. War Precautions Acts.—On the outbreak of war in Europe, the Federal Parliament passed an Act to enable the Governor-General to make regulations and orders for the safety of the Commonwealth during the state of war. The provisions of this Act, which was assented to on 29th October, 1914, will be found in Official Year Book No. 8, page 1092. Particulars of the *Enemy Contracts Annulment Act* will be found in the same issue of the Year Book, page 1095.

The War Precautions Act 1918 provided that the War Precautions Act 1914–16 should remain in force only until 31st July, 1919, or for a period of three months after the issue of a proclamation that the state of war has ceased, whichever period is the longer. All regulations made under the Act will lapse with it.

Under the powers conferred by the above Acts, the *War Precautions Regulations* were made. They provided for the appointment of competent naval or military authorities to exercise certain powers under the regulations, and other matters. The principal provisions of the regulations are given in Official Year Book No. 11, pp. 1035–1043.

The War Precautions Act Repeal Act of 1920 repealed the Act 1914–18, but certain of the regulations are still in force.

§ 9. Repatriation.

1. General.—In common with others of the late warring countries of the world, Australia has had to face the problem of the returned soldier—to find employment for the fit, to re-establish the disabled, to provide for the dependents of those who have died or of those who are no longer able to support themselves, and to supply medical and surgical treatment for disabilities due to or aggravated by war services.

During the early stages of the war this work was carried out mainly by voluntary effort, assisted by Government funds, and supplemented by private contributions. Disconnected and divergent schemes were extemporised to meet the pressing needs of soldiers and their families, with the result that there was overlapping in some directions and insufficiency in others. The Commonwealth Parliament therefore decided that Repatriation should become a national undertaking, and that a comprehensive scheme should be designed to meet the various claims in connection therewith. On 8th April, 1918, the Department of Repatriation, charged with this responsibility, was established, the first Minister being Senator the Hon. E. D. Millen.

2. Organisation of the Department.—The organisation of the Department provides for a Central Administrative Commission of three paid members, termed the Repatriation Commission, one of whom is chairman, and each of whom is a returned soldier. Its duties are to prescribe by regulation the nature and extent of the assistance that may be granted, and to hear appeals from decisions of the State Boards. Under the Amending Act of 19th May, 1920, the Repatriation Commission also took over the administration of war pensions. Repatriation Head-quarters are in Melbourne. District branches have been established in the capital city of each State, and associated with these branches are State Boards, comprising three paid members, one of whom is chairman, and providing for the representation of returned soldiers. The permanent official at the head of each State organisation is termed Deputy Commissioner. A network of local committees is connected with the district branches. The local committees are voluntary organisations possessing dual functions. They act as sub-agents under the control and direction of the Department so far as the disbursement of assistance specifically provided by the Department is concerned, and they are vested with discretionary powers in regard to the disbursement of supplementary assistance, organised and raised locally. Local Committees work within clearly defined territorial boundaries. Under this scheme every square mile of the whole continent of Australia is brought directly under the operation of the departmental policy.

3. Policy of the Department.—The policy of the Department is based upon four main principles :—(a) To secure the re-establishment of returned soldiers in the industrial life of the community to the fullest extent that circumstances permit ; (b) to sustain these soldiers until an opportunity for such re-establishment is assured ; (c) to provide for the care and education of the dependents of soldiers who have died on active service, as well as the dependents of soldiers who, on account of injuries sustained, are unable to provide for those formerly dependent upon them ; and (d) to provide medical treatment after discharge for returned nurses, sailors and soldiers who are suffering from disabilities caused or aggravated by war service.

To give effect to these principles the Department undertakes :—

- (1) To provide suitable employment for those who are able to follow their previous occupation or one similar to it, and to pay sustenance until such opportunities are presented ;
- (2) To restore to the fullest degree of efficiency possible, by means of vocational training, those who on account of war service are unable to follow their pre-war occupations, and during the period of such training to assure trainees adequate sustenance ;
- (3) To maintain by pensions or in hostels totally and permanently incapacitated soldiers and their dependents, and soldiers' widows with children.

- (4) To supply gratis all necessary treatment, surgical aids, and medicaments; all hospital fees, and transport expenses thereto and therefrom, with allowances for certain classes for the period of treatment (where hospital treatment is not feasible the same may be given in the home or in such place as may be approved).
- (5) To provide educational facilities and maintenance allowances for children of deceased and totally and permanently incapacitated soldiers so that they may ultimately engage in agricultural, industrial, commercial or professional occupations.

4. Activities of the Department.—(a) *Assistance and Employment.* The activities of the Department provide for the administration of a wide variety of benefits such as employment, vocational training, land settlement, medical treatment, children's education and assistance. Under assistance, establishment in small businesses, furniture loans and grants, educational grants and equipment with tools of trade, and funeral expenses are provided. In co-operation with the State Governments a land settlement scheme, whereby the Federal Government lends the States the necessary money to acquire the estimated number of holdings required, and to construct railways or other works necessary to their successful occupation has been devised. Under this scheme the Commonwealth Government will also make available working capital up to £625 per settler. This will afford every soldier possessing the natural aptitude and fitness an opportunity of ultimately owning his own farm. With the exception of South Australia all the States have agreed to extend the benefits of the Land Settlement Scheme to munition and war workers to whom the Commonwealth advance of £625 will be available.

(b) *Treatment of War Service Disabilities.* For disabilities due to or aggravated by war service, discharged nurses, sailors and soldiers are entitled to free medical treatment, dressings, and necessary medicines as well as the supply, renewal and repair of artificial limbs, and surgical aids. The expenses of unavoidable travel for any medical or surgical purposes are undertaken by the Department, which likewise defrays any necessary expenses in a hospital or other approved place. By arrangement with the Pharmaceutical Society, upon the production of the medical officer's prescription to any pharmacist in the Commonwealth, such medicines, lotions or dressings as may be required will be immediately supplied free to the soldier. The following classes of after discharge medical treatment are provided for—

- (1) Treatment in hospitals in metropolitan areas for cases of a class which cannot be effectively dealt with in a country hospital, in which continuity of previous treatment is desirable.
- (2) Treatment as out-patients in metropolitan areas and country centres.
- (3) Treatment in country hospitals where suitable or in cases of emergency.
- (4) Treatment in own homes or elsewhere in cases of emergency within country districts.
- (5) Treatment in convalescent homes, hostels, farms, sanatoria, or other special institutions.

5. Sustenance Rates and Pensions.—The sustenance rate that may be granted to applicants awaiting fulfilment by the Department of certain specified obligations is:—

- (a) To a soldier without dependents a weekly income inclusive of pension of £2 2s.;
- (b) To a soldier with a wife a weekly income inclusive of their combined pensions of £2 17s. An additional allowance of 3s. 6d. per week is made for each child up to four, the maximum sum payable being £3 9s. per week.

Those who are eligible for this benefit are applicants awaiting employment; approved applicants waiting to take up land; trainees in technical schools; and soldiers receiving medical treatment. Vocational trainees with dependents, however, receive higher rates than those mentioned above. The rates payable were increased in October, 1921, in consideration of the fact that owing to industrial depression the period of training, which even under normal conditions is not short, was in many cases prolonged to a greater extent than was originally anticipated would be necessary.

The present sustenance rates for Vocational Trainees are as follow :—

- (i) To a trainee without dependents a weekly income inclusive of pension of 42s. (similar to above).
- (ii) To a trainee with a wife a weekly income inclusive of combined pensions of 60s. An additional allowance of 5s. per week is made for each child up to four, the maximum sum payable being 80s. per week (eligible students training in professional courses may receive £2 2s. per week inclusive of pension).

The general Pensions rates payable to Widow or Widowed Mother on Death of a Member of the Forces, or to a Member, or to the Wife of a Member, upon his total incapacity, are as follows :—

Rate of Pay of the Member per Day at Date of Death or Incapacity.	Fortnightly Pension Payable to Widowed Mother on Death of Member.	Fortnightly Pension Payable to Widow on Death of Member.	Fortnightly Pension Payable to Member upon Total Incapacity.	Fortnightly Pension Payable to Wife of Member who is Totally Incapacitated.
s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
6 0	2 0 0	2 7 0	4 4 0	1 16 0
7 0	2 3 0	2 7 0	4 4 0	1 16 0
9 0	2 9 0	2 9 0	4 4 0	1 16 0
10 0	2 12 3	2 12 3	4 4 0	1 16 0
10 6	2 13 9	2 13 9	4 4 0	1 16 0
11 6	2 16 0	2 16 0	4 4 0	1 16 0
12 0	2 17 3	2 17 3	4 4 0	1 16 0
13 0	2 19 6	2 19 6	4 4 0	1 16 0
17 6	3 10 0	3 10 0	4 4 0	2 0 0
22 6	3 17 6	3 17 6	4 5 0	2 2 6
30 0	4 9 0	4 9 0	4 15 0	2 7 6
37 6	5 0 9	5 0 9	5 5 0	2 12 6
45 0	5 12 3	5 12 3	5 15 0	2 17 6
50 0	6 0 0	6 0 0	6 0 0	3 0 0

Proportionate pensions are paid to soldiers not totally incapacitated, according to the assessment of their disabilities.

In addition to each child (son, daughter, stepson, stepdaughter, or adopted child of member of forces, under 16) :—Twenty shillings per fortnight for the first child, fifteen shillings per fortnight for the second child, and ten shillings per fortnight for the third and each subsequent child, if father is fully incapacitated ; or *pro rata* on the assessment of the father's pension.

In cases of (a) Widows with dependent children, and (b) Widows without children whose circumstances are such as in the opinion of the Commission justify an increase of the rates specified in this Schedule, and whose rate of pension, as specified in column three of this Schedule, is less than £4 4s. per fortnight, the Commission may, for such period as it thinks fit, increase the rate of pension to an amount not exceeding £4 4s. per fortnight.

A Special Rate of Pension, amounting to £8 per fortnight, may be granted to members of the Forces who have been blinded as the result of War Service, and to members who are totally and permanently incapacitated (*i.e.*, incapacitated for life to such an extent as to be precluded from earning other than a negligible percentage of a living wage).

The Commission may grant a pension not exceeding the Special Rate of Pension to any member of the Forces who is suffering from tuberculosis, and who has been for at least six months an inmate of an establishment for persons so suffering, and has been discharged from that establishment.

The Special Rate of Pension shall not be payable to any pensioners who are maintained in an establishment at the public expense.

In the case of a member who has been granted the Special Rate of Pension, the wife of such member shall not be entitled to receive a pension exceeding the rate specified above.

The total number of pensions in force was 225,387, and the amount expended at end of June, 1922, was £6,789,365.

6. *Summary of Work of Department from 8th April, 1918, to 30th June, 1922.*—The following is a summary of the work of the Department from its inception to the latest available date:—(a) *Employment.*—Number of applications, 229,822; number of positions filled, 125,679. (b) *Vocational Training.*—Vocational training is designed for—(i) Soldiers incapacitated from following their usual occupations. (ii) Apprentices whose indentures were interrupted by war service. (iii) Widows without children. (In cases where a widow with children satisfies the State Board that adequate arrangements can be made for the care of her children during training hours, applications for vocational training may be approved.) (iv) Students whose studies were interrupted by war services. (v) Members of the A.I.F. who enlisted under the age of twenty years. Classes representing 95 trades and callings have been established, with results as follows:—Number of men completed training, 16,787; number in training, 12,712. (c) *Assistance other than Vocational Training and Employment.*—Applications received, 474,495; applications approved, 407,852. (d) *War Service Homes.*—The operations of the War Service Homes Commission at 30th June, 1922, may be briefly set out as follows:—18,277 applications involving advances amounting to approximately £11,577,407 had been approved; 5,666 houses had been completed; 100 applicants had been assisted to complete or enlarge dwelling-houses partly owned; 131 houses were in course of construction; and 876 building applications had been approved in respect of which building operations had not been commenced.

In addition, the Commission had purchased on behalf of eligible applicants 10,378 already existing properties, and had taken over mortgages existing on 1,590 dwelling houses. Applications in respect of 464 completed houses had not, however, been definitely approved, but pending this action the houses are occupied by the applicants under a weekly tenancy agreement.

The foregoing figures do not include the operations of the State Bank of South Australia, the Government of which State is now carrying out the provisions of the War Service Homes Act on behalf of the Commonwealth Government. To the 30th June, 1922, these operations may be summarised as follows:—Applications approved, 2,429, involving approximately £1,573,714, and comprising—building applications, 1,619; existing dwelling-houses, 739; discharge of mortgages, 71.

(e) *Soldiers' Children's Education Scheme.* With the aid of the leading educational experts of the Commonwealth, a scheme has been devised by which facilities are provided for the instruction of children of deceased and totally and permanently incapacitated soldiers. Provision is made for preparing such children for agricultural, industrial, commercial and professional occupations. Supervision and administration is by Soldiers' Children Education Boards, which have been established in each State.

From the inauguration of the scheme in February, 1921, up to 30th June, 1922, 2,805 applications for assistance had been received. Of these, 2,071 had been approved, of which 107 recipients of the benefits had completed their training, 1,936 were attending school or undergoing training, 199 applications were pending, and the remainder had been refused or withdrawn. The trades undertaken include boiler-making, cabinet-making, engineering, saddlery, dress-making, tailoring, book-binding, etc.; whilst the professional students have taken up such courses as arts, science, engineering, theology, medicine, law, pharmacy, teaching and music. Progress reports indicate that the work of the Boards has already achieved a very large measure of success.

It is estimated that the scheme will involve an outlay of £1,250,000, of which the Commonwealth has undertaken to provide £800,000. It is expected that the balance will be forthcoming from private and public funds and benefactors. Under the Sir Samuel McCaughey Bequest a large sum was set apart for educational purposes, and the closest co-operation exists between the Commission and the McCaughey trustees by which duplication, overlapping, and unnecessary expenditure will be avoided. Up to 30th June, 1922, the expenditure was £53,914. The estimate for 1922-3 is £620,000.

It is claimed that not only is the well-being of the children concerned being provided for in the most beneficial way, but also that they will, with the progress of time, and as a result of the opportunities now afforded them equip themselves in such a manner as to bring within their reach positions of high usefulness in the community.

7. Assistance Granted.—The table hereunder shews the sums granted by way of assistance during the period from the inauguration of the Department (8th April, 1918) to 30th June, 1922 :—

DEPARTMENT OF REPATRIATION.—ASSISTANCE GRANTED FROM
8th APRIL, 1918, TO 30th JUNE, 1922.

Particulars.	Gift.	Loan.	General.	Total.
	£	£	£	£
Expenses in providing employment (including tools of trade and transportation expenses)	2,293,629	18,102	32,069	2,343,800
Vocational Training (including sustenance, fares, fees for instruction, books and equipment and training classes) ..	3,282,379	96,905	852,016	4,231,300
Furniture	73,318	953,378	..	1,026,696
Small businesses	1,636	207,399	4	209,039
Plant	775	171,298	41	172,114
Live stock	70	18,979	..	19,049
Settlers' sustenance and other expenses ..	482,146	24	15,639	497,809
Homes for blinded soldiers	1,438	..	2,624	4,062
Passages beyond the Commonwealth ..	71,664	25	421,846	493,535
Living allowances (including allowances for homes)	690,605	34,712	3,497	728,814
Educational grants for children	6,624	65	3,361	10,050
Medical treatment (including surgical aids and maintenance of soldiers at institutions not conducted by this Department)	858,675	..	348,574	1,207,249
Funeral expenses	23,234	64	10	23,308
Miscellaneous	33,376	8,767	36,510	78,653
Expenses of allotment	21	4,081	12,418	16,520
Maintenance of medical institutions ..	..	..	376,690	376,690
Grants to local government bodies to provide employment for returned soldiers ..	..	..	450,757	450,757
Grants to local committees for administrative and other expenditure ..	..	..	63,694	63,694
Payments to trainees incidental to advanced training in building trades and other expenses	6,775	..	17,090	23,865
Co-operative businesses .. .. .	..	1,025	..	1,025
Losses by fire on Departmental insurance of furniture loans .. .. .	..	..	230	230
Totals	7,826,365	1,514,824	2,637,070	11,978,259

8. Settlement of Soldiers on the Land.—In 1917 at the Premiers' Conference in Melbourne it was agreed that the States should undertake the work of settling soldiers on the land but that the Commonwealth should finance them for this purpose.

The classes of persons entitled to assistance as land settlers are :—

- (1) Members of the Australian Expeditionary and Naval Forces ;
- (2) Members of the Naval and Military Forces of any part of the King's Dominions other than the Commonwealth if they resided in Australia prior to enlistment ;
- (3) Munition workers and war workers who left Australia under engagement with the Imperial Government to undertake war work.

The original arrangement provided that the Commonwealth should take the responsibility of finding up to £500 per settler as working capital for improvements, implements, seed, etc., an amount which was subsequently increased so £625 per settler.

At the Premiers' Conference held in January, 1919, definite proposals were put forward by the States at the request of the Commonwealth Government and the latter agreed to finance the States to the extent shewn in the following table:—

PROVISION FOR SOLDIER SETTLEMENT, 1919.

State.	No. of Settlers.	Advances to Settlers.	Land Resumption.	Public Works.	Total.
	No.	£	£	£	£
New South Wales	8,405	5,253,125	1,208,408	5,792,658	12,254,191
Victoria	5,395	3,721,875	6,592,500	..	10,314,375
Queensland	2,826	1,768,250	500,000	415,664	2,381,914
South Australia	1,729	1,080,625	1,351,346	600,000	3,031,971
Western Australia	3,100	1,937,500	500,000	2,182,500	4,600,000
Tasmania	1,556	972,500	1,251,944	13,898	2,238,342
Total	23,011	14,731,875	11,104,198	8,984,720	34,820,793

As the number of applicants exceeded the estimates, the States sought further assistance from the Commonwealth. The basis of the agreement arrived at (Premiers' Conference, July, 1920) was that the Commonwealth Government should advance the States a flat rate of £1,000 per settler—£625 per settler (on the average) as working capital and £375 per settler (on the average) for resumptions and works incidental to land settlement, approved by the Commonwealth.

The numbers provided for to the 30th June, 1922, are as follow:—

SOLDIER SETTLEMENT, 30th JUNE, 1922.

State.	Quota to be Settled under Original Agreement.	No. Settled to 30th June, 1922.
	No.	No.
New South Wales	8,405	6,136
Victoria	5,395	8,871
Queensland	2,826	3,977
South Australia	1,729	2,314
Western Australia	3,100	3,905
Tasmania	1,556	2,535
Total	23,011	27,868

The amounts reimbursed to the State Governments by the Commonwealth to the 30th June, 1922, are as follows:—

	£
New South Wales	9,826,203
Victoria	11,968,176
Queensland	2,579,451
South Australia	2,586,972
Western Australia	4,083,782
Tasmania	2,108,688
Total	£33,153,272

Prior to the occupancy of the land, the Repatriation Department may pay sustenance for a limited period and subject to certain conditions, and during the first two years of occupancy, sustenance may be paid for six months while awaiting actual production.

The fares of a man and his family to his place of settlement are paid by the Repatriation Department and a limited amount allowed towards the cost of removal of his household effects.

Where men are given rural training, the cost of maintenance is shared between the State Lands Department and the Repatriation Department acting on behalf of the Commonwealth.

9. *Conspectus of State Laws affecting Settlement of Returned Soldiers on the Land.*—In Official Year Book No. 13, pp. 1018 *et seq.*, will be found a table giving particulars of the laws of the various States relating to returned soldiers' land settlement.

Later modifications have been made with a view to simplifying procedure, and liberalising the conditions under which holdings may be acquired.

SECTION XXIX.

THE TERRITORIES OF THE COMMONWEALTH.

A. GENERAL.

1. *The Territories Classified.*—The Territories of, or under the control of, the Commonwealth, are of three classes—

(a) Territories originally parts of the States which have been surrendered by the States to the Commonwealth.

These are the Northern Territory (formerly part of the State of South Australia) and the Federal Capital Territory (formerly part of the State of New South Wales).

(b) Territories, not parts of States, which have been placed under the authority of the Commonwealth by Order in Council under section 122 of the Constitution.

These are Papua and Norfolk Island.

(c) Territories which have been placed under the administration of the Commonwealth by Mandate issued by the League of Nations.

These are the Territory of New Guinea and (administered in conjunction with the British and New Zealand Governments) Nauru.

Of these, only those in class (a) are parts of the Commonwealth.

2. *Form of Executive Government.*—The Territories differ in their forms of Government. Papua is administered by a Lieutenant-Governor and a nominated Executive Council, who, except in matters of high policy and in certain matters prescribed by law, are not controlled by the Commonwealth Government; the Northern Territory, Norfolk Island, and the Territory of New Guinea are each under an Administrator who is closely controlled by the Commonwealth Government; in the Federal Capital Territory such local institutions as existed under the law of New South Wales continue, and no other provision for executive Government has yet been necessary; and the Executive Government of Nauru is vested in an Administrator who is subject only to the general control of the Government controlling the Administration.

The Lieut.-Governor of Papua is styled "His Excellency"; the Administrator of the Territory of New Guinea is not, nor are the Administrators of the Northern Territory or of Norfolk Island, entitled to be so addressed.

3. *Legislative Power.*—The laws of the Parliament of the Commonwealth are in force in the Territories which are parts of the Commonwealth, but are not in force in the Territories not parts of the Commonwealth unless expressly extended thereto.

In Papua, there is a nominated Legislative Council, which has full power of legislation, subject to the assent of the Governor-General. In New Guinea, the Northern Territory,* Norfolk Island and the Federal Capital Territory, there are no Councils, and Ordinances are made for these Territories by the Governor-General, subject to such Acts of the Parliament of the Commonwealth as are in force there; but the Ordinances usually give power to the Administrators of the Northern Territory and Norfolk Island, and sometimes to the Administrator of New Guinea, to make any regulations necessary for giving effect to them.

In Nauru the legislative power is vested in the Administrator, subject to instructions from the Government controlling the Administration.

* In the Northern Territory there is an Advisory Council.

4. **Laws.**—In the Northern Territory, Papua and Norfolk Island, the laws existing at the date of their coming under the control of the Commonwealth have remained in force, subject to later legislation by or under the authority of the Commonwealth Parliament; in the Federal Capital Territory there remained in force only a few of the laws of the State of New South Wales; in New Guinea, the former German law was repealed at the date of the establishment of civil government.

Three volumes containing the "Statute Law of the Territory of Papua" in force on 31st December, 1916, were published by the Government Printer, Port Moresby, in 1918 and 1919; subsequent Ordinances and the regulations under Acts and Ordinances are published in the *Government Gazette* of Papua and in annual volumes. The South Australian statutes in force in the Northern Territory will be found in the collected editions and annual volumes of the State of South Australia; Ordinances made by the Governor-General in the *Commonwealth of Australia Gazette*, and regulations under Ordinances in the *Northern Territory Gazette*. The laws in force in Norfolk Island at the time of its coming under the control of the Commonwealth were collected in the *New South Wales Government Gazette* of 24th December, 1913, and printed separately as "The Consolidated Laws of Norfolk Island"; Ordinances made by the Governor-General, and regulations made by the Administrator, are published in the *Commonwealth of Australia Gazette*. Ordinances made by the Governor-General for the Federal Capital Territory are published in the *Commonwealth of Australia Gazette*. Ordinances made by the Governor-General for the Territory of New Guinea are published in the *Commonwealth of Australia Gazette*, and Regulations made by the Administrator in the *New Guinea Gazette*; the statute law in force in New Guinea on 30th June, 1922, is being collected for publication in three volumes, and subsequent Ordinances and regulations will be collected in annual volumes. Ordinances made by the Administrator of Nauru are promulgated locally; the Report to the League of Nations on the Administration of Nauru from 17th December, 1920, to 31st December, 1921, contains the Ordinances made during that period.

5. **Finances.**—Papua is autonomous in its finances but receives an annual grant from the Commonwealth Government. The Administration of the Northern Territory is maintained by the Commonwealth Government, and a grant is made towards expenses of administration of Norfolk Island, but taxes are raised locally which meet part of the expenditure; expenditure in the Federal Capital Territory is defrayed by the Commonwealth; New Guinea has its own budget, and it is anticipated that local revenues will be sufficient to maintain the Administration. Nauru is self-supporting.

The sum appropriated by the Commonwealth Parliament in 1921–22 for the Territories outside the Commonwealth was £87,563, exclusive of £49,167 for mail services to these Territories and to other islands in the Pacific.

B. THE NORTHERN TERRITORY.

§ 1. Area and Population.

1. **Introductory.**—Upon the extension of New South Wales westward to the 129th meridian in 1827, the Northern Territory was comprised within that colony (see Year Book No. 4, page 16), and in 1863 was annexed by Royal Letters Patent to the province of South Australia. With the adjacent islands, it was transferred to the Commonwealth on 1st January, 1911.

2. **Area and Boundaries.**—The total area of this Territory is 523,620 square miles, or 335,116,800 acres. Its length from north to south is about 900 miles, while its breadth from east to west is 560 miles. Its eastern boundary, dividing it from Queensland, is the 138th meridian of east longitude; and its western boundary, separating it from Western Australia, the 129th meridian. Its southern boundary is the 26th parallel of south latitude, dividing it from South Australia. The northern boundary is the coast line of those parts of the Indian Ocean known as the Timor and Arafura Seas. Near the mouth of the Wentworth River, in the Gulf of Carpentaria, the coast line is met by the eastern boundary; at Cape Domett, near Cambridge Gulf, the western boundary

cuts the northern coast line. The length of coast line is about 1,040 miles, or 503 square miles of area to one mile of coast line; an exact survey has, however, not yet been made.

3. *Population.*—(i) *Character.* In 1881 there were 670 Europeans in the Territory, and at the end of 1913 the number was estimated at 2,143. The Chinese population, at its maximum during the years of railway construction, 1887 and 1888, has gradually dwindled, the estimate for 1914 being 1,033. Japanese, first recorded in 1884, increased up to the year 1898, falling again after five years. The highest recorded population, excluding aborigines, was 7,533 in 1888; in 1920 it was 3,992. The year 1911 was the first in which the population was dominated by the European race. A thirty years table of population, distinguishing races, will be found on page 1156 of the Commonwealth Official Year Book No. 5. Subsequent to the Census of 1911, a revision of the estimates, back to 1901, was made. A similar revision for the period 1911–1921 was made after the Census of 4th April, 1921. The results are incorporated in the following table :—

**POPULATION OF NORTHERN TERRITORY (EXCLUSIVE OF ABORIGINES),
ON 31st DECEMBER, 1901 TO 1921.**

Year ended 31st December.	Male.	Female.	Total.	Year ended 31st December.	Male.	Female.	Total.
1901 ..	3,999	674	4,673	1912 ..	2,807	628	3,435
1902 ..	3,847	627	4,474	1913 ..	2,926	690	3,616
1903 ..	3,582	652	4,234	1914 ..	3,165	738	3,903
1904 ..	3,514	692	4,206	1915 ..	3,586	898	4,484
1905 ..	3,368	678	4,046	1916 ..	3,712	954	4,666
1906 ..	3,248	656	3,904	1917 ..	3,748	1,055	4,803
1907 ..	3,095	642	3,737	1918 ..	3,499	1,141	4,640
1908 ..	2,963	609	3,572	1919 ..	3,376	1,171	4,547
1909 ..	2,927	576	3,503	1920 ..	2,911	1,081	3,992
1910 ..	2,738	563	3,301	1921 ..	2,718	1,019	3,737
1911 ..	2,644	589	3,233				

The Census population (4th April, 1921) was 2,821 males, 1,046 females; total, 3,867.

(ii) *Movement of Population.* The following is a summary of movement of population in 1921 (excluding overland migration) :—

MOVEMENT OF POPULATION, NORTHERN TERRITORY, 1921.

Inwards	516	Outwards	770	Excess of immigration over emigration ..	—254
Births	79	Deaths	80	Excess of births over deaths ..	—1
Increase	595	Decrease	850	Net result ..	—255

NOTE.—(—) signifies decrease.

The immigration and emigration of the Territory in five-year periods from 1881 to 1910, and for each of the years 1911 to 1921, are shewn in the following table :—

MIGRATION, NORTHERN TERRITORY, 1881 TO 1921.

Year.	Immigration.	Emigration.	Year.	Immigration.	Emigration.	Year.	Immigration.	Emigration.
1881–5 ..	3,683	3,787	1911 ..	412	431	1917 ..	1,501	1,370
1886–90 ..	9,208	7,250	1912 ..	846	610	1918 ..	1,259	1,450
1891–5 ..	1,958	2,353	1913 ..	1,033	840	1919 ..	1,159	1,273
1896–1900	2,538	2,259	1914 ..	1,102	792	1920 ..	606	1,161
1901–5 ..	2,211	2,932	1915 ..	1,904	1,287	1921 ..	516	770
1906–10 ..	2,559	3,125	1916 ..	1,389	1,159			

(iii) *The Aborigines.* An account of the Australian aborigines, by Dr. W. Ramsay-Smith, was given in Year Book No. 3 (pp. 158–176). It is believed that they are rapidly dying out. In these regions, remote from contact with other races, the native has maintained his primitive simplicity, and furnishes an interesting subject of study to the anthropologist and ethnologist. At the Census of 1921, full-blood aborigines in the employ of whites and those who were living in a civilised or semi-civilised condition in the vicinity of European settlements were enumerated—the males being 1,184, females 866; total 2,050. The aggregate of the estimates supplied by officers of the Police Department, who acted as Census collectors, and are in close contact with the aboriginal population, was 17,349. The interests of the natives are looked after by a Protector of Aborigines, with head-quarters in Darwin. On 30th June, 1921, aboriginal reserves and mission stations in existence, or proposed, covered an area of over 34,000 square miles. The greatest difficulty which confronts the Administration in dealing with the natives is due to the circumstance that they are nomads without fixed abode, merely wandering about hunting for native food within the limits of their tribal boundaries, and making no attempt at cultivation or other settled industry. In their natural state, compared with those of other tropical countries the natives are very healthy, but in contact with new settlers, white or Chinese, they rapidly fall victims to disease, and to degradation from drink or opium.

§ 2. Legislation and Administration.

1. *Transfer to Commonwealth.*—(i) *The Northern Territory Acceptance Act.* A short historical sketch is given in Year Book No. 6, pp. 1113–4. On 1st January, 1911, the Territory was transferred by South Australia to the Commonwealth, upon terms previously agreed upon by the respective Cabinets, and ratified by the Commonwealth *Northern Territory Acceptance Act* (No. 20 of 1910). It is enacted that laws and courts of justice remain in operation, powers and functions of magistrates and officials remain vested; estates and interests continue upon the same terms; trade with Australian States is declared free. The Commonwealth assumes responsibility for the State loans in respect of the Territory, paying the interest yearly to the State, providing a sinking fund to pay off the loans at maturity, and paying off the deficit in respect of the Territory. It also purchases the Port Augusta to Oodnadatta railway, and agrees to complete the construction of the transcontinental railway from Port Darwin to Port Augusta.

(ii) *The South Australian Surrender Act.* The State Act approves and ratifies the agreement surrendering the Territory.

(iii) *The Northern Territory (Administration) Act 1910.* The Act provides for Government authorising the appointment of an Administrator and officials. South Australian laws are declared to continue in force as laws of the Territory, and certain Commonwealth Acts to apply. Power is given to the Governor-General to make Ordinances having the force of law.

(iv) *Administration.* A Resident Administrator, vested with supreme authority in internal affairs, was appointed in the Department of the Minister for External Affairs in February, 1912. Many other important administrative offices have also been filled.

(v) *Legislation.* The main provisions of the Ordinances passed are as follows:—The powers and duties of the Administrator vested in the appointee, include custody of the public seal, appointment and suspension of officials, and execution of leases of Crown lands. A Supreme Court with original and appellate jurisdiction is instituted, the method of appointment of the Judge is prescribed, and provision is made for trial by jury, and for the registration and summoning of jurors. A Sheriff, a Registrar-General, and a Health Officer are provided for, also the registration of births, marriages and deaths, and of deeds and documents. Custody and control of aborigines, with extensive powers of supervision, are vested in the Chief Protector. Provision is made for the control of fisheries. Birds protected during the whole or part of the year are scheduled. Crown

lands are classified, and their mode of acquisition, entry and holding defined. The prevention and eradication of diseases in plants have been provided for. Under the Stock Diseases Ordinance the Chief Inspector of Stock has wide powers in regard to the movements of stock, prevention and control of diseases, etc. Shop assistants are to have a weekly half-holiday, and the establishments must be closed at a certain time. A town council has been constituted for Darwin, and provision made for assessments, rates, etc. Mining is encouraged by the provision of rewards for the invention of new processes, and the discovery of valuable deposits and of new mineral fields; subsidisation of the industry and the issue of prospecting licenses are also provided for. Licenses to search for mineral oil, and leases for working, are available. Provision has been made for the granting of leases for oyster culture. A Board is constituted for the purpose of making advances to settlers who intend to improve and stock their holdings, to purchase farm implements, plant, etc., or to pay off mortgages, the rate of interest and terms of repayment being set out. Advances in aid of the erection of workmen's dwellings have also been provided for. A Council of Advice has been appointed, consisting of a chairman and seven members—four being non-official—the object of the Council being to advise the Minister on matters affecting the welfare of the Territory. Provision has been made for the compensation of injured workers, for controlling the sale, etc., of necessary commodities, for the appointment of a public trustee, and for amendment of the "Taxation Act 1884" of South Australia in its application to the Territory. Reference to the Liquor Ordinance will be found hereunder.

(vi) *Liquor Traffic.* By the Liquor Ordinance of 1915-21 the Commonwealth Government controls the importation of liquor into that part of the Territory which is situated to the north of the 15th parallel south latitude. The hotels situated there are owned by the Government; but have been leased to private persons. There is a liquor store at Darwin and three hotels, and hotels at Pine Creek and the Katherine. The Department directs its energies to the minimising of excessive drinking and the prevention of illicit trading in intoxicants. (For Schedule of Ordinances to the end of 1920, see Year Book No. 14, pp. 990-1.)

(vii) *Representation.* Section 122 of the Commonwealth Constitution provides that "the Parliament may make laws for the government of any territory . . . and may allow the representation of such territory in either house of the Parliament to the extent and on the terms which it thinks fit." In pursuance of this provision an Act has recently been passed whereby the Northern Territory elects a member to the House of Representatives. As this member will represent a very small number of electors, he is not entitled to vote, but may take part in any debate in the House.

§ 3. Physiography.

1. *Tropical Nature of the Country.*—The Territory is within the torrid zone, with the exception of a strip $2\frac{1}{2}$ degrees wide, which lies south of the Tropic of Capricorn.

2. *Contour and Physical Characteristics.*—The low flat coast line seldom reaches a height of 100 feet. Sandy beaches and mud flats, thickly fringed with mangroves, prevail. Sandstone, marl, and ironstone form the occasional cliffy headlands. The sea frontage of more than 1,000 miles is indented by bays and inlets and intersected by numerous rivers, many of which are navigable for considerable distances from their estuaries.

The principal features of the coast line are enumerated in Year Book No. 1, p. 66; the rivers in Year Book No. 2, p. 76; the mountains in Year Book No. 3, p. 67; the lakes in Year Book No. 4, p. 77; the islands in Year Book No. 5, pp. 71, 72, and the mineral springs in Year Book No. 6, p. 65.

Inland, the country generally is destitute of conspicuous landmarks. From the coast there is a general rise southwards to the vicinity of the 17th or 18th parallel of south latitude, where the higher lands form the watershed between the rivers that flow northwards to the sea, and those that form the scanty supply of the interior systems. Towards the centre of the continent, the land over a wide area is of considerable elevation, and there are several mountain ranges, generally with an east and west trend.

§ 4. Climate, Fauna and Flora.

1. *The Seasons*.—There are two main climatic divisions—the wet season, November to April, and the dry season, May to October, with uniform and regular changes of weather. Nearly the whole of the rainfall occurs in the summer months. Fuller particulars will be found in Year Book No. 6, p. 1116.

2. *Fauna*.—The ordinary types of native Australian fauna inhabit the territory. As elsewhere on the continent, the higher *Theria* are rare, but marsupials, birds, crocodiles, fresh-water tortoises, snakes (mostly non-venomous), and frogs abound. There are many varieties of freshwater fish and littoral mollusca. Butterflies and beetles are strongly represented. The white ant is a pest, anthills in the Territory sometimes attaining great dimensions. Mosquitoes and sandflies are very troublesome, particularly in the wet season. Native fauna are in some cases protected. The domesticated animals have been introduced, and buffalo formerly existed in large herds, but their numbers have been greatly depleted by indiscriminate shooting in recent years.

3. *Flora*.—The vegetation is North Australian in type, but a number of the forms belong to the Malayan and Oceanic regions. The timber trees are not of great commercial value, but in the coastal regions tropical vegetation grows luxuriantly to the water's edge. On the wide expanses of plain country of the interior, there is little vegetation. The principal orders represented in the Territory are:—*Euphorbiaceæ*, *Compositæ*, *Convolvulaceæ*, *Rubiaceæ*, *Goodeniaceæ*, *Leguminosæ*, *Urticæ*.

Fuller particulars regarding fauna and flora are given in Year Book No. 6, pp. 1116-7.

§ 5. Production.

1. *Agriculture*.—Up to the present, agriculture has made little progress in the Territory, although it has been demonstrated that rice may be grown as an ordinary crop suitable for chaff as fodder, and in certain situations for milling; while maize, cowpeas, sorghum, amaranth, millets of various kinds, and sugar-cane can also be cultivated. The drawbacks to success at the present are lack of suitable labour, deficient means of communication, and periodicity of the rainfall. Purely tropical products such as cotton, tea, coffee sisal hemp, and cigar tobacco can flourish, but their profitable cultivation depends on a supply of cheap labour, which is unobtainable. The Commonwealth Government established demonstration farms at Daly River and Batchelor, but these have been converted into aboriginal compounds. During the dry season considerable trouble is caused by the depredations of white ants.

2. *Stock*.—(i) *Distribution*. The spacious, well-grassed "runs" of the Territory are, with adequate water supply, suitable for horse and cattle breeding. According to the Report of the Acting Administrator, the area under pastoral lease on the 30th June, 1921, was 183,796 square miles. Large numbers of cattle are overlanded to neighbouring States, which also take considerable quantities of horse hides. Five gazetted stock routes aggregate a distance of 2,121 miles, and with the completion of the present contract for bores there will be a good supply of permanent water thereon. There are Government cattle stations at Oenpelli (2,000 square miles), Mataranka (864 square miles), carrying altogether about 2,300 cattle and 275 horses, these figures representing only about one-fifth of the present estimated capacity of the stations.

An experiment with sheep on Mataranka Station was not very successful owing to unsatisfactory lambing and the dingo and hawk pests, and the flock was disposed of to a private purchaser. The estimated number of stock in the Territory on 30th June, 1921, is given in the appended statement:—

LIVE STOCK, NORTHERN TERRITORY, 30th JUNE, 1921.

Horses.		Cattle.		Sheep.		Pigs.
37,837	..	659,840	..	6,062	..	1,322

In 1921 there were also 16,257 goats, and small numbers of camels, mules, and donkeys.

The dairying industry has not been developed, although it has been shewn that it is possible to make butter of good quality. A sample from Oenpelli has been very favourably reported on by the Chief Dairy Produce Expert. Fresh milk is procurable in Darwin from the Government dairy, which was leased to a private supplier in 1914. It is found that the rank indigenous grasses in some localities are greatly improved by constant stocking, and become largely replaced by shorter and sweeter varieties.

Herds of wild buffaloes are found on the mainland and on Melville Island, and are descendants of swamp buffaloes, introduced in the early part of last century. The numbers have, however, been greatly depleted by buffalo shooters. During the 25 years ending in 1911 about 4,000 hides per annum were exported. It is stated that the number of buffaloes left in the Territory is now only about 20,000. The flesh of the animal is said to be remarkably free from disease and to equal beef in food value, while buffalo milk is twice as rich in butter fat as ordinary cow's milk. Buffalo hides were unsaleable last year, which meant a temporary protection for the much depleted herds.

(ii) *Meat Preserving Works.* By agreement with the Government an extensive meatworks under private ownership was established in the vicinity of Darwin, and commenced operations in April, 1917. During fourteen weeks of this year the number of cattle treated was 19,000. In 1918 and 1919 operations again started in April and lasted for sixteen weeks in each year, the "kill" in the former year being 29,000, and in the latter 22,000. Owing to difficulties occasioned chiefly by the dearth of shipping the works were forced to close down in 1920.

3. *Mining.*—Small quantities of the precious and commercial metals are mined. The discovery of gold and tin in various localities, and the measure of success that has attended their working, indicate scope for development. An important discovery of tin at Maranboy Springs was made in 1913, and this field is now the most productive in the Territory. It is stated that better results could be obtained by amalgamating the smaller properties, and working on a larger scale, with more modern methods. The collapse of the mining industry in the Northern Territory, as shewn by the figures below, may be accounted for partly by the serious fall in the metal markets, tin and wolfram in particular, partly by the exhaustion of the easily extracted and richer surface deposits; principally, however, by the utter failure of all efforts to introduce outside capital for development and prospecting purposes.

No copper was produced last year.

The wolfram sold in 1920–21, amounting to 102 tons, was carried over from the previous year. No wolfram was produced during the last year.

(i) *Mineral Production.* Both alluvial and reef gold are found, and other minerals are also raised. The following table shews the total mineral production for the last seven years :—

VALUE OF MINERAL PRODUCTION, NORTHERN TERRITORY, 1914 TO 1920–21.

Year.	Gold.	Tin Ore.	Wolfram.	Silver- Lead Or.	Copper Ore.	Mica.	Total Value all Minerals.
	£	£	£	£	£	£	£
1914	10,757	15,200	4,025	545	4,860	..	35,807
1915	4,182	13,245	5,278	1,073	10,710	..	34,498
1916	2,554	27,120	20,269	275	5,517	..	55,780
1917–18	2,229	41,432	38,788	200	9,648	..	92,730
1918–19	4,234	30,021	34,805	132	2,349	150	71,697
1919–20	3,192	27,610	45,648	299	780	482	78,011
1920–21	1,042	7,793	9,752	..	..	159	18,746

(ii) *Employment of Miners, 1914 to 1920-21.* The following table shows the average number employed in mining during the last seven years, distinguishing Chinese :—

MINERS, NORTHERN TERRITORY, 1914 TO 1920-21.

Year.				Europeans.	Chinese.	Aboriginals.	Total.
1914	..	..	..	136	462	..	598
1915-16	..	..	..	137	371	..	508
1916-17	..	..	..	141	350	..	491
1917-18	..	..	..	194	282	68	544
1918-19	..	..	..	194	260	16	470
1919-20	..	..	..	195	250	12	457
1920-21	..	..	..	155	180	8	343

(iii) *Mining Accidents, 1911 to 1920-21.* In 1911 five mining accidents were recorded, four resulting in death. There were no serious accidents in 1910, 1912, and 1913, and only one, resulting in death, in 1914, and one in each of the years 1915, 1916, and 1917-18. No mining accidents were recorded in 1918-19, 1919-20, and 1920-21. During the nine years preceding (1901-1909), nine fatal accidents and seven cases of serious injury were recorded. The majority of the victims were Chinese.

4. *Pearl, Trepan, and Other Fisheries.*—In 1884 mother-of-pearl shell was discovered in the harbour of Port Darwin. Difficulty in working, principally through heavy tides and muddy water, retarded the development of the industry for many years. Subsequently, however, the opening up of new patches led to a revival, but the outbreak of war gave the industry a setback, owing to the limited demand in the home markets. During 1920-21, operations have been languishing owing to the low prices of shell and small takes by the boats. The number of boats engaged was only 8, as against 11 the previous year, employing 2 Europeans, 8 Japanese, and 34 Koe pang boys. Twenty tons of pearl shell were exported.

Trepan fishing has also received a setback owing to a slump in the market. The number of boats engaged during the year was only 4, compared with 14 in 1919-20, employing 12 Europeans, 1 Manila man, and a number of natives. The export was 25 tons.

It may be mentioned that the territorial waters abound in marketable fish, and, given transport facilities, it would be possible to establish a trade in fish dried or otherwise preserved. During 1920-21, 21 persons were licensed, principally Greek. The net take for the year was about 30 tons.

§ 6. Commerce and Shipping.

1. *Trade.*—No record is kept of the direction of trade between the Commonwealth States and Territories. The value of the direct oversea trade for 1901, and for each of the years 1915-16 to 1920-21, is given hereunder :—

**VALUE OF DIRECT OVERSEA TRADE, NORTHERN TERRITORY,
1901 AND 1915-16 TO 1920-21.**

Items.		1901.	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
		£	£	£	£	£	£	£
Imports ..	..	37,539	74,424	82,775	32,287	25,140	29,056	19,857
Exports ..	..	29,191	20,953	13,251	268,419	377,258	277,627	14,752
Total	..	66,730	95,377	96,026	300,706	402,398	306,683	34,609

The principal items of oversea export in 1920-21 were hides and skins £2,303; fish, smoked or dried, £5,341; and pearlshell £2,810. The large increase in 1917-18 and 1918-19 as compared with previous years is due to the operations of the meat preserving works at Darwin. Owing to the closing down of these works in 1920 the figures for the year shew a considerable decline as compared with those for the years 1917-20.

2. Shipping.—The Territory is dependent for its shipping facilities chiefly on the services of vessels trading between Sydney and Singapore. Other vessels make occasional visits, while a quarterly service between Fremantle and Darwin is carried out by the "Bambra," belonging to the West Australian State Shipping Service.

SHIPPING, NORTHERN TERRITORY, 1881 TO 1920-21.

Period.	Arrivals.		Departures.	
	No. of Vessels.	Tonnage.	No. of Vessels.	Tonnage.
1881-1885 (Annual Average) ..	72	71,814	72	71,692
1886-1890	95	94,452	103	94,724
1891-1895	75	81,128	73	81,090
1896-1900	71	88,284	70	88,244
1901-1905	63	93,751	63	91,556
1906-1910	87	128,502	88	128,408
1915-16	91	208,441	91	208,441
1916-17	70	161,636	68	161,313
1917-18	51	115,288	50	107,497
1918-19	43	88,928	42	88,806
1919-20	41	83,086	43	83,264
1920-21	30	65,301	30	65,398

The Government owns a small vessel, the "John Alce," 33 tons.

§ 7. Internal Communication.

1. Railways.—Under the agreement ratified by the Act, the Commonwealth is to construct the Northern Territory portion of the transcontinental railway line (connecting Adelaide and Darwin, via Port Augusta).

The Northern line from Adelaide terminates at Oodnadatta, about 100 miles south of the southern boundary of the Territory. The only line at present in the Territory is one from Darwin to Emungalan, Katherine River, a length of 198.68 miles, of 3 ft. 6 in. gauge. The line to connect Katherine River with Oodnadatta (about 1,012 miles) has been surveyed, the greater part of the survey being exploratory in character. The completion of the gap would permit of the development of the broad belts of pastoral and mineral country towards the centre of Australia. The Commonwealth also acquired on 1st January, 1911, the property in the line from Port Augusta to Oodnadatta (478 miles).

2. Posts.—Postal communication is maintained by vessels belonging to Burns, Philp and Co. In addition, the vessels belonging to the State Steamship Service of Western Australia give a service once every sixty days between Fremantle and Darwin. Inland, the northern part of the Territory receives its mail via Darwin, while the southern districts are served via Adelaide.

3. Telegraphs.—The transcontinental telegraph line, covering a length of 2,230 miles, was completed on the 22nd August, 1872, at a cost of nearly half-a-million sterling. The line runs in a northerly direction from Adelaide to Darwin, whence telegraphic communication is provided with Asia and Europe, via Banjoewangie (Java), Singapore, and Madras.

Between Darwin and Banjoewangie the submarine cable is duplicated.

§ 8. Finance.

1. Revenue and Expenditure, 1920-21.—In the Commonwealth finance statements separate accounts are given for Northern Territory administration. The following shews the receipts and expenditure for the financial year :—

REVENUE AND EXPENDITURE, NORTHERN TERRITORY, 1920-21.

REVENUE.	£	EXPENDITURE.	£
Customs and Excise ..	4,450	Salaries and Contingencies ..	137,045
Postal, Telegraph, and Telephone	8,584	Darwin-Katherine Railways—	
Darwin-Katherine River Railway	12,761	Working Expenses ..	27,601
Territorial	19,294	Melbourne Administrative Services	3,734
Land and Income Tax ..	9,373	Royal Commission	728
Miscellaneous	18,485	Interest and Sinking Fund, Commonwealth Stock, issued for Redemption of Loans, Railway Construction, etc.	12,766
Quarantine	83	Interest on Treasury Bills, issued for Redemption of Loans, Railway Construction, etc.	21,413
Lighthouses and Light Dues ..	266	Interest and Sinking Fund, Northern Territory Loans ..	121,135
Stamp Duties	562	New Works, Artesian Bores, Roads, etc.	22,144
Deficiency on year's transactions	279,699	Miscellaneous	6,991
Total	353,557	Total	353,557

2. Northern Territory Debt.—The items making up the total debt of the Territory as at 30th June, 1921, are as follows :—

	£	£
Debt at date of transfer to the Commonwealth, 1st January, 1911 .. ..	..	3,931,086
Redeemed under Commonwealth Loan Acts ..	1,261,167	1,721,792
Redeemed from Consolidated Revenue ..	460,625	
Balance, 30th June, 1921 .. ..	..	2,209,294

In addition, the balance of the Port Augusta-Oodnadatta Railway Loans taken over from South Australia amounted at the same date to £1,759,003, making a total of £3,968,297. Under the provisions of the "Northern Territory Acceptance Act 1910" a sinking fund has been established in connexion with the transferred loans.

§ 9. Land Tenure.

1. Present Policy.—A description of the system of land settlement in force in the Territory will be found in the chapter "Land Tenure and Settlement," see pages 171 and 172 *supra*. Prior to the transfer of the Territory to the Commonwealth on 1st January, 1911, the sale and occupation of lands were regulated by the South Australian Legislature in Statutes applying particularly to the Territory. Under the Commonwealth Government a complete reorganisation was effected, and the system adopted was embodied in the Crown Lands Ordinances of 1912 to 1918. The conditions are of a very favourable

nature, with low rents and elastic conditions of tenure. In order to provide for cases where allottees on inspection of their blocks have reasonable grounds for preferring another block, the Administrator is empowered to revoke leases, under certain conditions. Under the Advances to Settlers Ordinance 1913, provision was made for giving settlers financial assistance in the pioneering years. Repayment of loans can be extended over a period of 30 years. Owing to the high evaporation rate, the surface waters in the Territory dwindle rapidly during the dry season, and, except in favoured localities, sub-artesian supplies must be resorted to where obtainable. In order to encourage the provision of water supply, it is proposed, in granting leases, to allow minimum rentals in the case of lessees who make satisfactory provision by means of bores, wells, or dams.

The revenue from pastoral leases and permits for the year 1920-21 was about £15,200, and from grazing licences £1,300.

2. **Number of Holdings.**—The table on page 172 *supra* shews the total area under lease, license, and permit in 1901 and in each year from 1916 to 1921. On the 30th June, 1921, there were in existence 463 pastoral leases covering 183,796 square miles, 131 grazing licences covering 38,482 square miles, and 65 miscellaneous leases and 23 pastoral permits embracing areas respectively of 2,358 and 6,427 square miles.

C. THE FEDERAL CAPITAL TERRITORY.

1. **Introductory.**—In Year Books Nos. 4 and 5, information was given in section XXXI as to the events leading to the selection of the Federal Capital Territory, and as to the necessary legislation and the progress of operations in connexion with the establishment of the capital city. The physiography of the Territory was dealt with *in extenso*, and topographical and contour maps accompanied the letterpress, as well as reproductions of the premiated designs for the laying out of the city. Considerations of space, however, preclude the repetition of this information. On the 12th March, 1913, the official ceremony to mark the initiation of operations in connexion with the establishment of the Seat of Government was carried out. At this ceremony the selection of "Canberra" as the name of the capital city was announced.

2. **Progress of Work.**—After an International Competition, a design for the lay-out of the capital city was approved, and steps were taken to commence the construction in accordance therewith.

The survey of the main axial lines was completed, and areas for initial development were subdivided. A scheme for water supply by impounding water on the Cotter River was completed. The construction of an outfall sewer was undertaken, as well as the formation of the principal avenues. An Afforestation Branch was established which made exhaustive experiments in regard to the varieties of trees that would be suitable for street, park and forest planting. These activities were greatly curtailed in 1916, and practically suspended until the year 1920.

In the early part of 1921, "with a view to enabling the Federal Parliament to meet, and the Central Administration of the Commonwealth Government to be carried on as early as practicable at Canberra," the Governor-General in Council approved of the appointment of a Committee of five, consisting of architectural and engineering experts, to inquire into and advise upon the works already executed and the data available, and to submit a scheme for progressive construction of the city. The Committee submitted a scheme of construction involving an expenditure of approximately £2,000,000, the main principles of which—that owing to the necessity for economy, buildings and works of a monumental character be deferred, and that Parliament House and other Governmental buildings be of a provisional character—were adopted by the Government, and work has since proceeded in accordance with this scheme.

The construction of main avenues and roads according to the approved plan has been resumed, and many miles have been formed, and a considerable portion metalled or gravelled.

Certain portions of the residential areas for initial settlement have been developed, and engineering services such as roads, sewerage, drainage and water supply from the Cotter have been provided. The water supply and sewerage have been so arranged as to connect up with the main city services when completed. The construction of the main outfall sewer has been resumed; a large intercepting channel has been constructed along the foot of Mt. Ainslie to protect the civic centre from storm water; and electric lighting and power services have been extended to serve the residential areas and for the various construction works, many miles of transmission line having been erected. Fire services have also been provided. Parliament has approved of schemes for water supply mains to the city area and for the construction of the first section of the main intercepting sewer within the city and these works are now being commenced.

Forty cottages have been erected—twenty in the Ainslie area, ten in the Power House area, and seven in the Brickworks area, and the construction of an additional twenty is now being commenced.

The erection of a hostel for visitors, with an immediate accommodation for 100 persons, is being commenced on a site adjoining the Governmental Area, and schemes for a provisional Parliament House and Administrative Offices and other buildings in the Governmental Area, as well as hostels for the accommodation of officials and certain public buildings for the Civic Centre, are in preparation.

Power is supplied from a Power House with a capacity of 1,350 kilowatts, which was one of the first structures provided, and the manufacture of bricks, joinery, cement products, and other requirements, is being actively carried on in the Territory. Plant for tile making is now being installed.

A considerable amount of survey work involved in laying out areas, roads, sites for buildings and various engineering works has been carried out and is still in active progress.

Extensive tree planting has been undertaken. Belts of trees for shelter and various city parks have been planted and the formation of avenues and streets and other ornamental features has been carried out, as well as a large amount of afforestation work on the outskirts of the city proper.

Provision has been made for the constant maintenance of roads, buildings and other services in the Territory.

3. Lands in the Territory.—As a considerable portion of the Commonwealth lands within the Territory is not required in connexion with the establishment of the city, such areas are being made available for leasing under certain conditions. A large number of leases has been disposed of under conditions requiring the extermination of rabbits, noxious animals and weeds. About 18,700 sheep and 500 head of large stock are on agistment on land that will be required for departmental use at a later date. Reference has already been made on page 204 to the area of alienated, acquired and leased land within the Territory. All areas are classified into three classes of agricultural and three classes of grazing lands, and about 24,000 acres of these lands are at present leased to returned soldiers for periods varying from five to twenty-five years. The whole of the acquired lands in the Territory are now being classified and the roads regraded in order that leases of a permanent character may be granted.

4. Lands at Jervis Bay.—Sovereign rights over a certain area comprising about 28 square miles of land and water at Jervis Bay, to be used as a Port in connexion with the Federal Capital, have been granted by the New South Wales Government, and accepted by the Commonwealth. The Royal Australian Naval College has been established in this area on a site known as Captain's Point.

5. Railways.—The line from Queanbeyan to Canberra, 4 miles 75 chains long, was opened for goods traffic on 25th May, 1914, and is being worked by the New South Wales Railways Commissioners. This line has been extended on to the Power House, and also a further 2½ miles across the Molonglo River to the Civic Centre towards Yass. These extensions are at present only used for Departmental purposes. The total length is approximately 8 miles. A trial survey of the Canberra-Jervis Bay line has been completed, and plans have been prepared sufficiently to enable an approximate estimate of the cost of the line to be arrived at. The permanent survey from Canberra to the boundary of the Federal Territory towards Yass—a distance of 11 miles—has now been undertaken, and the New South Wales Government is about to undertake the permanent survey from Yass to the Territory boundary—about 32 miles.

6. **Population and Live Stock.**—The estimated population on the 31st December, 1921, was 2,157. The live stock in the Territory, according to the latest return, comprises:—Horses, 1,500; cattle, 11,000; sheep, 205,000.

7. **Educational Facilities.**—Arrangements have been made for the New South Wales Education Department to continue, for the time being, the administration of education in the Territory the expenditure involved to be refunded annually by the Commonwealth to the State.

8. **Revenue and Expenditure.**—The net expenditure in the Federal Territory subsequent to the passing of the "Seat of Government Acceptance Act 1909," and up to the 30th June, 1919, was for 1910-11 £20,319, 1911-12 £64,772. 1912-13 £135,270, 1913-14 £251,669. 1914-15 £212,506, 1915-16 £166,052, 1916-17 £105,971, 1917-18 £32,111, 1918-19 £931, 1919-20 £2,977, 1920-21 £114,598, making a total of £1,107,176. A detailed statement of the various items of expenditure since 1910 is given in the following table:—

**COMMONWEALTH SEAT OF GOVERNMENT.—ADDITIONS, NEW WORKS,
EXPENDITURE TO 30th JUNE, 1921.**

Item.	Total Expenditure to 30th June, 1920.	Expenditure (or Credit), 1920-21.		Total Expenditure to 30th June, 1921.
		Dr.	Cr.	
	£	£	£	£
Afforestation	15,848	3,140	..	18,988
Bridges, Roads, and Culverts	82,743	..	..	82,743
Buildings, Repairs, etc.	124,691	3,638	..	128,329
Brickworks	45,790	..	..	45,790
Cement and Quarrying	5,111	..	..	5,111
Electricity (Mains and Plant only)	76,147	2,999	..	79,146
Fire Brigade	1,267	13	..	1,280
Fencing	3,637	978	..	4,615
General Expenditure (including Ad- ministrative Charges)	153,222	9,935	..	163,157
Maintenance Accounts	1,878	2,000	..	3,878
Manufacturing Accounts	Cr. 5,152	..	..	Cr. 5,152
Motor Cars and Upkeep	9,214	1,097	..	10,311
Medical Services	11,842	1,304	..	13,146
New South Wales Government (Services Rendered)	15,039	4,236	..	19,275
Plant, Instruments, etc.	22,934	153	..	23,087
Railways	65,906	414	..	66,320
Rabbit Destruction	20,104	1,163	..	21,267
Stock (Material)	41,375	..	..	41,375
Sewerage, Mains, etc.	38,407	..	..	38,407
Water Supply	255,713	1,093	..	256,806
Wire Netting Lessees	6,862	1,019	..	7,881
Initial Settlement .. .. .	..	63,190	..	63,190
Preparatory Work .. .. .	..	18,037	..	18,037
Completion of Line (Construction) .. .. .	..	189	..	189
Total	992,578	114,598	..	1,107,176

The revenue of the Federal Territory for the year ended 30th June, 1921, was £33,671, including £569 from rates.

9. **Military College.**—In June, 1911, a Military College was opened at Duntroon for occupation by the cadets and staff. Particulars regarding the establishment of this College may be found in Year Book No. 4 (p. 1159). Previous reference has been made to it in the section of this book dealing with Defence (see page 915).

10. **Naval College at Jervis Bay.**—See section of this book dealing with Defence page 923.

D.—NORFOLK ISLAND.

1. *Area, Location, etc.*—Norfolk Island, discovered by Captain Cook in 1774, is situated in latitude $29^{\circ} 3' 45''$ south, longitude $167^{\circ} 58' 6''$ east. Its total area is 8,528 acres, the island being about 5 miles long and 3 miles wide. From Sydney it is distant 930 miles, and from New Zealand 400 miles. The coast line is 20 miles, and its form that of an irregular ellipse. Except on the south-west, inaccessible cliffs rise from the water's edge. The climate is equable, the temperature ranging between 56° and 82° with a mean of 68° . The average annual rainfall is 55 inches. It has been said that the salubrious climate coupled with the beauty of its land and sea scapes should combine to render Norfolk Island "the Madeira of the Pacific."

2. *Settlement.*—The first colonisation, in 1788, was by Lieutenant King, who in H.M.S. *Sirius* established a small penal station as a branch settlement of that at Port Jackson. The settlement was abandoned in 1806, and thence for 20 years its chief use was as a whaling station and place of call for British warships.

From 1826 to 1855 it was again made a penal station. In 1844 it was annexed to Van Diemen's Land (Tasmania).

The descendants of the *Bounty* mutineers, having become too numerous to subsist on Pitcairn Island, were removed thence to Norfolk Island in 1856. The new community numbered 193—94 males and 99 females—and were the descendants of British sailors and Tahitian women.

In 1856 the island was severed from Tasmania, and created a distinct and separate settlement under the jurisdiction of New South Wales. In 1897 it was made a dependency under the Governor of that Colony, and was administered by the Chief Secretary's Department through a resident Chief Magistrate, in whom was vested the executive government of the settlement, and the penal supervision of its affairs. In 1913, however, a Bill was passed by the Federal Parliament providing for the taking over of the island as a territory of the Commonwealth. The Act came into force on 1st July, 1914, and the island is now administered by the Department of Home and Territories, Melbourne, through an Administrator and Chief Magistrate.

3. *Population and Live Stock.*—The population on 4th April, 1921, was 339 males, and 378 females, a total of 717. Births in 1920 numbered 22, and deaths 11. The latest returns of live stock shew that there are on the island 1,760 cattle, 677 horses, 390 sheep, and 144 pigs. In addition there are about 5,000 head of poultry.

4. *Production, Trade, etc.*—The soil throughout is rich, and is specially suitable for the cultivation of citrus fruits, bananas, and (in parts) coffee. Various other sub tropical fruits thrive well. During 1920–21 the production of oranges was 27,775 bushels; bananas 204,150 dozen; passion fruit 12,165 bushels; coffee 21,325 lb.; and pineapples 649 dozen. There are many thousands of lemon trees and guavas growing wild throughout the island. The manufacturing and export of lemon juice and lemon peel is one of the principal sources of revenue to Norfolk Island. Unfortunately, owing to a glut in the Sydney market at the latter end of 1921 the lemon factories were compelled to close down.

Hundreds of whales pass the island during the season, but owing to old-fashioned methods very few are captured. The whaling industry, if brought up to date, would be of great importance. The preserved fish industry also offers a great field for commercial energy; such fish as trevalla, kingfish, schnapper, and many others, are plentiful. A company already is in operation, but it has greatly to confine its output, owing to inadequate shipping facilities. In order to improve conditions of marketing, and in other ways to promote the economic interests of the island, a Farmers' Association has been formed. In 1920–21 the imports were valued at £22,673. The exports were valued at £13,091, the chief items being preserved lemon peel, lemon juice, and hides. Small quantities of fruit and fruit pulp, passion fruit juice, seeds, fish, whale oil, wool, and timber were also exported. Nearly all the export trade was with the Commonwealth, only small amounts going to New Zealand and the South Sea Islands. The Administrator in his annual report points out the necessity of improved shipping facilities, if Norfolk Island is to progress. At present the island is visited once only every second month, by one of Burns, Philp and Co.'s island steamers. To make matters worse the cargo space is so limited that cargo is often left behind, while even passengers frequently fail in securing berths to and from the island. The Farmers' Association is now endeavouring to accelerate

trade with New Zealand. The "all red" cable from Great Britain via Vancouver, Fanning Island and Fiji bifurcates at Norfolk Island, one line connecting with New Zealand, the other with Brisbane.

5. **Social Condition.**—Education is free and compulsory up to the age of fifteen years. The school is under the N.S.W. Department of Public Instruction, with standards corresponding to the State public schools, but the salaries and allowances of the teachers are paid by the Norfolk Island Administration. The number of scholars enrolled on the 30th June, 1921, was 127.

The magistrate's court has criminal jurisdiction in all crimes except capital offences. civil jurisdiction in all matters, and authority to grant probate and letters of administration.

E. NEW GUINEA.

1. THE ISLAND OF NEW GUINEA.

1. **Geographical Situation of New Guinea.**—New Guinea, frequently described as the largest island in the world, lies to the north of Australia, between 0° 25' and 10° 40' S. latitudes, and between 130° 50' and 150° 35' E. longitudes. Its estimated area exceeds 300,000 square miles, the greatest length being 1,400 miles and the greatest breadth 430 miles.

A map shewing the Territory of New Guinea, Papua, and adjacent islands will be found on page 969.

2. **Discovery.**—The island was probably sighted by Abreus in A.D. 1511. The first visit by Europeans was apparently either that by the Portuguese Don Jorge de Meneses on his way from Goa to Ternate in 1526, or that by the Spaniard Alvaro de Saavedra in 1528. In 1606 Torres, having parted company with De Quiros at the New Hebrides, sailed, on his way to the Philippines, through the strait which separates the island from Australia, and which now bears his name.

3. **Colonisation.**—Little progress was made for many years in exploration and settlement. First the Portuguese, and afterwards the Dutch, who to a great extent replaced them as the principal European traders in the East, seem to have jealously excluded other traders and adventurers, and to have kept the knowledge of their discoveries to themselves. The coasts were visited by Roda, Schouten, Lemaire, Tasman, Dampier, Torres, Bougainville, and Cook; but the difficulties of navigation, the savagery of the islanders, and the tempting fields for enterprise in the more temperate regions further south, diverted the energy of traders and voyagers. Forrest describes a voyage by himself in 1774. In 1793, New Guinea was annexed by two commanders in the East India Company's service. Since that date the Dutch have made extensive surveys of the western portion, and the British and Germans have occupied and colonised the eastern. In September, 1914, German New Guinea was seized and occupied by Great Britain by means of a force raised and despatched by the Australian Government.

4. **Partition.**—The three colonising powers agreed to the partition of New Guinea, each having suzerainty over islands adjoining its own territory. The whole of the portion west of the 141st degree of longitude, comprising about 150,000 square miles, or nearly half the island, belongs to the Dutch. The eastern half was divided in almost equal portions between Great Britain and Germany, the area possessed by each (with adjacent islands) being about 90,000 square miles. An Anglo-German boundary commission, appointed for the purpose of defining the boundary between the territories of the two nations, started operations on 26th December, 1908, and completed the field-work on 27th October, 1909. The total length of boundary delimited was 66½ miles. The work was both important and difficult. For a considerable portion of the survey, the country was exceedingly rough and mountainous, and the natives hostile. In one instance, the line was carried over a range at an elevation of 11,110 feet. The Dutch colony forms part of the residency of Ternate in the Moluccas, and has not been extensively developed. The German protectorate, where considerable commercial development had taken place, included the northern part of the eastern half of the mainland, known as Kaiser Wilhelm Land, and the large islands of the Bismarck Archipelago and the Solomon Group, as

well as nearly 200 smaller islands. The south-eastern portion of New Guinea, nearest Australia, is a dependency of the Commonwealth of Australia. The German Pacific protectorate was terminated in 1914.

2. PAPUA.

§ 1. General Description of Papua.

1. *Australian Dependency of Papua.*—Surveys of the east coast of New Guinea by Stanley, Yule, Blackwood, Moresby, and others, brought home to Queensland, and to Australia generally, the danger to her commerce which would result from foreign possession of the islands and coasts opposite to Cape York, and from the holding by a hostile power of the entrance to the splendid waterway inside the Barrier Reef. The mainland opposite the shores of Queensland east of the 141st meridian was therefore annexed by that colony in 1883, but the action was disallowed by the British Government. In 1884, however, a British protectorate was authoritatively proclaimed by Commodore Erskine over the region lying east of the 141st meridian as far as East Cape, with the adjacent islands as far as Kosman Island. In the year following, an agreement with Germany fixed the boundaries between the possessions of the two countries, and to Great Britain was assigned the portion now known as Papua, lying between the extreme limits of 5° and 12° S., and 141° and 155° E. The British protectorate was subsidised by Queensland, New South Wales, and Victoria, and lasted until 30th September, 1888, when it was proclaimed a possession of the Empire. Its constitution was then that of a Crown colony, in association, however, with Queensland. Administration was in the hands of a Lieutenant-Governor, aided by an Executive and a Legislative Council, and advised by a Native Regulation Board. Port Moresby, on the south coast, was made the head-quarters of the official establishment; a supreme court was established there, and magisterial courts in the districts; and an armed native constabulary force (numbering 250 on the 30th June, 1921), under a European officer, was instituted for the maintenance of order. There were also, on the same date, 857 native village constables and 396 native interpreters, warders, boats' crews, etc., employed by the Crown.

2. *Annexation by Commonwealth.*—The Territory was placed under the authority of the Commonwealth on 1st September, 1906, by proclamation issued in pursuance of Letters Patent of the 18th March, 1902, and was accepted by the Commonwealth by the Papua Act 1905, which came into force by virtue of the proclamation aforesaid. The transfer was made under the authority of section 122 of the Constitution (see p. 24 hereinbefore). The Territory is now under the administration of the Commonwealth, but not included within it, and is divided into eleven magisterial districts.

3. *Physical Characteristics.*—Papua lies wholly within the tropics. The northernmost point touches 5° S. latitude; its southernmost portion, comprising Sudest and Rossel Islands, lies between 11° S. and 12° S. latitude. It is separated from Australia by Torres Strait. The length of Papua from east to west is upwards of 800 miles; towards either end the breadth from north to south is about 200 miles, but about the centre it is considerably narrower. The Territory comprises also the islands of the Trobriand, Woodlark, D'Entrecasteaux, and Louisiade groups. The length of coast-line is computed at 3,664 miles—1,728 on the mainland, and 1,936 on the islands. The total area is about 90,540 square miles, of which 87,786 are on the mainland, and 2,754 on the islands. From the eastern end of the territory rises a chain of mountains, which forms a great central ridge and attains its greatest altitude, as it extends westwards, in the Owen Stanley Range, the highest points of which are Mount Victoria (13,200 feet), Mount Scratchley, the Wharton Range, and Mount Albert Edward. The western end of the possession is for nearly 300 miles generally low and swampy for some distance along the coast. The whole territory is well watered. The great mountains and a large portion of the lower country are covered with forest. The islands are mountainous, and, with the exception of the low coral islands of the Trobriand Group, part of Murua, and a few others of small dimensions, principally of volcanic formation. The highest is Goodenough Island, 8,000 feet. The largest rivers of the mainland flow into the Gulf of Papua. The Fly River, with its tributaries, drains an extensive area of the territory of the Netherlands, as well as of the British. Its length in British territory is about 620 miles, and it is navigable by a steam launch for over 500 miles. Other important rivers are the Turama and the Purari. There are many excellent harbours.

§ 2. Population.

The total white population of Papua on 4th April, 1921, was 1,343, made up of 961 males and 382 females. Included in these figures are 79 persons, who were passengers and crew of the s.s. *Marsina*, which was at Samarai at the taking of the Census. The following table gives the white population of Papua for the last six years :—

WHITE POPULATION OF PAPUA, 1916 TO 1921.

YEAR ENDED 30TH JUNE.

1916.	1917.	1918.	1919.	1920.	1921 (a)
992	1,036	962	971	1,096	1,343

(a) The figure for 1921 is the Census return.

The chief occupations of the non-indigenous population were :—Government officials and employees, 132 ; commercial pursuits, 150 ; shipping, 124 ; tropical agriculture, 266 ; missionary work, 144 ; mining, 159.

It is not possible to make a reliable estimate of the number of natives, owing to the fact that much of the interior country is unexplored. The official estimate is 250,000. These speak many languages and dialects. The coloured population, other than Papuans, numbered on 4th April, 1921, 577. These included many mission teachers from Samoa, Fiji, and other Pacific Islands. On the same date, half-castes, with one of the parents a European, totalled 158. An Immigration Restriction Ordinance prohibits the immigration into the Territory of persons who fail to pass the dictation test, or who are persons of bad character, or likely to become a charge upon the public. Exemptions may, however, be granted by the Lieutenant-Governor to persons of special skill whom it is desired to employ as overseers or foremen.

§ 3. Native Labour, Taxation, Etc.

The rights of both employer and labourer are conserved by the Native Labour Ordinances. Service on the part of the native is voluntary, and he must be justly treated, and properly housed and fed. Employers may recruit personally, or obtain their natives through a licensed recruiter. Contracts of service must be in writing, entered into before a magistrate or other qualified officer, and the natives must be returned to their homes on completion of engagement. The labour question is complicated by the communistic system which prevails in the villages. Native custom demands that the friends or fellow-clansmen of the returned labourer receive a share in whatever he gets. The result is that the stimulus of individual interest is largely absent. During the period of service the recruiter or employer is personally responsible for the native's welfare. Refusal to work after engagement, or desertion from service, renders the labourer liable to imprisonment. On the other hand, a magistrate may terminate an engagement where unjust or harsh treatment by the employer is proved. The term of indenture must never exceed three years, and in the case of miners and carriers eighteen months is the limit, but re-engagements may be made. The magistrate must satisfy himself that the remuneration is fair, that the native is willing to undertake the service, and that there is no probability of unfair treatment or detention. Wages must be paid in the presence of an officer. A medicine chest, stocked with necessary drugs and first aid instruments, must be kept by all employers.

Just treatment, good food, and satisfactory remuneration for his labour have made the Papuan savage an excellent servant. With considerable natural aptitude and intelligence, he is able to understand readily what is required by his employer ;

consequently native labour is very largely engaged by the Administration for the construction of roads and public works, and by the private employer for the clearing and upkeep of plantations. While in some districts the natives manifest a marked unwillingness to work, in other cases, inland villagers have offered themselves as labourers without suggestion from recruiters or other officers. Actual ill-treatment of native employees may be said to be non-existent.

The number engaged under contract of service during the year ended 30th June, 1921, was 7,495, as compared with 6,397 in the preceding year. The decline in labour supply, in 1919-20, created considerable anxiety amongst employers. The increase last year, however, proves that the decline was only temporary. Owing to the agricultural depression, caused by the low prices on tropical products, the supply of labour at present is in excess of demand, and many natives are actually going about the country looking for work and unable to find it.

Under the Native Taxes Ordinance, passed in 1918, a tax not exceeding £1 may be imposed on natives, excepting native constables, mission teachers, natives unfit for work, and those who have not less than four living children. The proceeds of the tax are to be expended on education, or for such purposes having for their object the direct benefit of the natives as may be prescribed.

The taxes collected in 1920-21 totalled £18,772. The expenditure for the year has again been low, because, though the various missions accepted the offer of substantial annual subsidies for additional educational facilities for natives, they had not yet completed the necessary arrangements for commencing work. The principal items of expenditure were:—Native education, £283 15s. 6d.; native plantations, £424 5s. 6d.; anthropology, £321 14s. 9d.; bonus paid to mothers at rate of 5s. per annum for four living children under sixteen, with an additional 1s. for each child above four, £222 14s. The credit balance of the Native Taxation Account on 30th June, 1921, was £22,962.

§ 4. Production.

1. Papuan Products.—The products of the Territory are obtained from its agricultural, forestal fishing, mining, and manufacturing industries. There is a Papuan Court at the Imperial Institute, London, where, beside maps, handbooks and reports, a representative collection of products is shewn, additions being made to the exhibits from time to time. Displays of Papuan produce are also made at exhibitions held in the Commonwealth. The industries of Papua are not numerous, but they are becoming more diversified. In many cases, some years must elapse before the raw material is available for commerce.

2. Agriculture.—(i) *Soil and Rainfall.* The physical features of Papua are favourable to agriculture. Rich soils at varying elevations, and heavy and evenly-distributed rainfall, have ensured success in cultivating almost every tropical product of value. The Territory comprises immense areas of rich alluvial and volcanic soils along the coast, and equally fertile land at elevations up to 6,000 feet. Splendid rainfalls are recorded, except over a belt of country which runs back from the coast to the hills, and which has its dry season from May to November. This “dry” area is admirably suited for the production of tobacco, fibres, cotton, etc. There are 16 meteorological stations throughout the Territory. An economic museum and agricultural library have been established.

(ii) *Plantations.* On 31st December, 1920, there were 246 plantations. Agricultural settlement has been mostly in the Central and Eastern Divisions, though plantations are spreading in other districts. The total area planted was 58,347 acres, or an average of 237 acres for each plantation. The principal plantation industries entered upon up to the present are coconuts, rubber, and sisal hemp. Secondary agricultural industries are

the cultivation of bowstring hemp, kapok, coffee, tobacco, vanilla, cocoa, tapioca, cinnamon, tea, rice, and maize. The natives are compelled by an ordinance to plant coconuts for food supply. In the Kokoda district, which is not suitable for coconut planting, 8,000 rubber seeds and plants were distributed amongst the native villages in 1918. In addition to the coconuts in these plantations many more are planted over small and widely scattered areas by the older natives in accordance with custom. The following table shews the areas under the different cultures at the end of December, 1920 :—

	Acre.
Coconuts	44,328
Rubber	7,250
Hemp	5,856
Coffee	10
Rice	62
Other cultures (including fruit trees)	841
Total	58,347

The quantity and value of the various products for the year ended 30th June, 1921, were as follows :—

Copra, 2,984 tons	£68,578
Hemp, 188 tons	7,723
Rubber, 220 tons	28,966
Total	£105,267

It was estimated in 1917 that over £1,000,000 had been expended in plantations, and, with the exception of two large British companies, practically the whole of the capital was subscribed in Australia and locally.

(iii) *Government Plantations and Experimental Stations.* At Orangerie Bay the Government coconut plantation covers an area of 1,100 acres, some of the trees being in bearing. Copra making has been commenced, the production in 1921 being 109 tons, realising £2,665. The Government rubber plantation on the Kemp-Welch River has an area of 230 acres, and contains over 4,000 trees large enough for tapping, but no action has been taken in this direction owing to the low price of rubber.

(iv) *Indigenous Products.* There are many indigenous plants of great economic value. These comprise sandalwood and other timber trees, sugar-cane, cotton plants, rubber-both vine, nutmegs, ginger, bamboos, palms, bananas, bread-fruit, edible nuts, sago-palms, fruits, and vegetables. About 92,000 acres are held under timber licences, but little development has so far been undertaken. There are large areas of valuable timbers, but some of them are situated in mountainous country, difficult of access. The export of mangrove bark for tanning purposes amounted in 1920-21 to 196 tons, valued at £1,408. [See also Forest Products 4 hereunder.]

3. *Live Stock.*—On 30th June, 1921, the live stock in the Territory consisted of 290 horses, 1,271 head of cattle, 56 mules, 2 donkeys, 560 goats, and 132 pigs. A Government stud farm has been established for the breeding of horses. The introduction of rabbits, foxes, hares, and monkeys is prohibited.

4. *Forest Products.*—There is a large diversity of useful timbers in Papua. Of 120 varieties that have been catalogued, 16 are adapted to resisting heavy strains, and are suitable for girders, railway wagons, etc.; 10 for railway carriage and coach building; 15 for joinery, lining, flooring, etc.; 14 for butter boxes; 5 for boat building; 4 for piles,

and 15 for cabinet work. Sandalwood is indigenous. It is largely used for cabinet work, and santal oil is distilled from its roots. Ebony is also produced for export. Rubber is a promising industry. There are considerable areas of native rubber (*Ficus Rigo*); but the planters generally prefer the imported Para rubber. Guttapercha is obtained from a species of *palaquium*, which grows on the hills. Drugs, dyewoods, and spices are also obtained from indigenous plants. The mountain firs offer possibilities in the shape of turpentine oils and timbers, while the conifer *Agathis alba* yields a valuable resin. Saw mills have been established, but the output has not been sufficient to supply the local demand for building and other timber. The Papua Co. Ltd. operates at Manu Manu and supplies timber to various parts of the Territory.

5. Fisheries.—Pearl-shell fishing occupies an important place in the industries of Papua. A considerable number of luggers is licensed, but the returns are mostly credited to Queensland, whose boundary approaches to within a few miles of the Papuan coast. The species of tortoise which supplies the commercial tortoise-shell is also a native of the Territory. Bêche-de-mer and trochus are found along the shores and reefs. There is a dugong fishery on the coast of the Western Division. The value of fisheries exports in 1920-21 was £28,472, of which bêche-de-mer accounted for £7,922, pearls £14,950, trochus shell £3,302, turtle shell £91, and shell, other, £1,045.

6. Mining.—(i) *Variety of Minerals.* Minerals have been discovered in many places, and over an extremely wide range. Those discovered so far are—gold, copper, tin, lead, zinc, cinnabar, iron, osmiridium, gypsum, manganese, sulphur, graphite, chromite, brown coal, lignite, and petroleum. Indications of the existence of petroleum have been found at scattered intervals over an area of country covering about 1,500 square miles between Yule Island and the Purari Delta, in the Gulf Division of Papua. Quantities of oil and inflammable gas have been met with in the test bores put down, but not in sufficient bulk as yet for commercial purposes. Indications have also been noted in Dutch New Guinea, and in the portion of the Territory formerly under German control. According to one observer, the whole of the East Indian Archipelago forms one “petroliferous province,” the statement being supported by the fact that the nature of the oil so far obtained in Papua is more comparable with Dutch East Indian oil than with any other.

Exploitation of the Papuan oil-fields by private companies is not permitted.

Of precious stones, only the topaz and beryl have been obtained. Large beds of apparently good coal also exist. A geologist was added to the Government service at the beginning of the year 1911.

(ii) *Gold.* In 1888 the first gold was discovered. The search has now spread over every division, and finds have been recorded wherever the explorers have gone. Prospecting parties are subsidised by the Government. There are 56 white miners and 613 indentured and casual labourers, of whom 45 whites and 433 indentured labourers were working on the Louisiade field. This field was the chief producer in 1920-21, the yield being valued at £15,668. The Yodda field returned 350 ozs., and the Gira 210 ozs. The total quantity, in fine ounces, and the value as returned of the gold yield for five years are given below:—

GOLD YIELD, PAPUA, 1916-17 TO 1920-21.

1916-17.		1917-18.		1918-19.		1919-20.		1920-21.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
fine ozs. 7,731	£ 32,839	fine ozs. 6,732	£ 28,594	fine ozs. 5,303	£ 27,084	fine ozs. 8,866	£ 21,747	fine ozs. 2,047	£ 11,159

Most of the rivers, with the exception of those flowing into the Gulf of Papua, have been declared open to gold-dredging, and good yields have been obtained from many of the rivers thus dredged. The total value of gold won to 30th June, 1921, was £1,567,168.

(iii) *Copper*. The export of copper ore in 1920-21 amounted to 255 tons, valued at £1,830. There has been very little activity in actual mining during the year. Preparations for extensive mining were made at the Astrolabe field, but these have slackened considerably. The total amount shipped to the end of June, 1921, was 8,357 tons, valued at £114,795.

(iv) *Osmiridium*. During 1920-21 it is estimated that about 208 ozs. of this metal, valued at £6,245, were obtained, chiefly on the Gira goldfield. The existence of osmiridium had been known for some years, but no serious attempt was made to collect it, the alluvial gold miner even picking out the larger slugs of the metal from his gold parcel and throwing them away.

(v) *Other Minerals*. Some good samples of galena (sulphide of lead) have been obtained. Small quantities of cinnabar (sulphide of mercury), graphite (or plumbago), zinc-blende, native sulphur, and other minerals are also found.

A mineral laboratory and museum have been fitted up, and are available to prospectors and others interested.

7. *Water Power*.—Most of the rivers in Papua carry a large volume of water from a great height over a relatively short distance, and in consequence the Territory is admirably situated for the introduction of hydro-electric schemes. It is estimated that there are at least 10,000,000 h.p. available for this purpose.

§ 5. Statistical Summary.

1. *Revenue and Expenditure*.—The revenue and expenditure for 1920-21, under principal heads, are given below; also a summary covering a period of five years. In addition to the revenue collected during the year, amounting to £98,175, a sum of £40,000 was granted by the Commonwealth Government.

REVENUE AND EXPENDITURE OF PAPUA, 1920-21.

REVENUE.			£	EXPENDITURE.			£
Customs and Excise .. ..	..	..	53,196	Lieutenant-Governor and Civil list .. ..	..	..	4,466
Post Office .. ..	..	..	3,011	Government Secretary .. ..	..	..	57,575
Licenses .. ..	..	..	1,220	Treasury .. ..	..	..	33,318
Fees, fines, etc. .. ..	..	..	6,981	Lands, Mines, and Agriculture ..	..	..	8,597
Mining receipts .. ..	..	..	924	Public Works .. ..	..	..	19,103
Land revenue .. ..	..	..	6,682	Medical .. ..	..	..	17,973
Harbour dues .. ..	..	..	2,083	Native Affairs .. ..	..	..	3,573
Miscellaneous receipts .. ..	..	..	4,003	Central Court .. ..	..	..	2,042
Stamp duties .. ..	..	..	165	Legislative Council .. ..	..	..	180
Appropriation of former years, etc.	..	..	19,910				
Total .. ..	..	..	£98,175	Total .. ..	..	..	£146,827

REVENUE AND EXPENDITURE OF PAPUA, 1916-17 TO 1920-21.

Item.		1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
		£	£	£	£	£
Revenue .. ..	..	63,568	72,594	73,121	85,337	98,175
Expenditure .. ..	..	83,740	103,176	102,962	118,436	146,827

The loans due to the Commonwealth by the Territory of Papua amount to £79,303.

2. Imports and Exports.—The value of imports and exports for the last five years is shown in the table below:—

VALUE OF IMPORTS AND EXPORTS OF PAPUA, 1916-17 TO 1920-21.

Particulars.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Imports.. ..	271,640	285,792	258,112	422,741	484,770
Exports.. ..	156,535	220,599	176,247	270,481	172,672
Total Trade ..	428,175	506,391	434,359	693,222	657,442

As in all new countries, the imports consist chiefly of articles necessary for the primal needs of the community. Thus in 1920-21 the imports of agricultural products and groceries came to £126,000; drapery, £55,000; metals and machinery, £88,000; tobacco, £32,000; oils, paints, etc., £22,000; beverages, £15,000; wood, wicker, and cane, £8,000; drugs, £11,000. Government stores to the value of £75,000 were also imported. The chief items of export during the last five years are as follows:—

EXPORTS OF PAPUA, 1916-17 TO 1920-21.

Article.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
	£	£	£	£	£
Gold	37,988	32,931	27,084	21,757	11,159
Copra	40,882	68,225	53,264	124,035	68,578
Rubber	26,682	37,020	33,010	41,542	28,966
Hemp	11,463	17,682	12,532	12,284	7,723
Copper Ore ..	14,050	11,572	1,613	..	1,830
Pearl Shell and Trochus Shell ..	8,050	6,625	9,375	24,255	4,464
Pearls	2,400	19,250	21,550	25,577	14,950
Bêche-de-Mer ..	2,521	3,551	2,240	612	7,922
Bark	4,423	7,228	4,847	2,686	1,408

The year has not been a prosperous one owing to the low prices ruling for some of the principal products, such as copra, rubber, and sisal hemp. The price of copra has been exceedingly erratic, varying, approximately, from £11 to £36 a ton. Rubber has been at such a low price that it has proved unprofitable, and some planters have decided to cease tapping. Nor can sisal hemp be profitably grown with the present price for that product.

3. Postal and Shipping.—No great development in means of communication has taken place during latter years. Postal returns and the tonnage of vessels entered or cleared at ports have varied, but on the whole shew little or no increase.

POSTAL STATISTICS OF PAPUA, 1916-17 TO 1920-21.

Year.	Letters.		Packets.		Newspapers.		Parcels.	
	Received.	Despatched.	Received.	Despatched.	Received.	Despatched.	Received.	Despatched.
1916-17 ..	127,296	106,836	14,724	4,476	98,016	33,900	3,108	1,044
1917-18 ..	137,850	124,656	20,214	5,850	91,866	45,738	3,606	882
1918-19 ..	159,702	114,540	10,272	5,832	125,118	42,354	4,266	1,008
1919-20 ..	174,138	135,234	15,072	8,214	141,906	46,686	5,208	1,182
1920-21 ..	116,208	144,930	9,876	6,510	72,168	45,402	3,972	1,362

The value of money orders issued in 1916-17 was £6,207; of those paid, £1,146. In 1920-21, the respective values were £7,131 and £2,317.

The following table shows the number, tonnage, and nationality of vessels entered and cleared at ports during the years 1916-17 to 1920-21 :—

SHIPPING.—FOREIGN-GOING VESSELS ENTERED AND CLEARED AT PORTS OF PAPUA, 1916-17 TO 1920-21.

Nationality.		Vessels.									
		Number.					Tonnage.				
		1916-17	1917-18	1918-19	1919-20	1920-21	1916-17	1917-18	1918-19	1919-20	1920-21
British ..	..	121	117	98	86	108	72,414	57,955	60,108	59,189	67,624
Foreign ..	..	50	20	..	..	..	158,594	63,772	..	..	..
Total ..	..	171	137	98	86	108	231,008	121,727	60,108	59,189	67,624

Throughout, the figures are exclusive of ships of war and Government vessels.

§ 6. Land Tenure.

1. *Method of Obtaining Land.*—(i) *The Land Laws.* The broad principles upon which the land laws of Papua are based are :—(a) No land can be alienated in fee simple ; (b) the rental of the land leased is assessed on the unimproved value of the land, and is subject to reassessment at fixed periods.

A detailed account of the method of obtaining land was given in Official Year Book No. 6, pp. 1083-4.

(ii) *The Leasehold System.* With a view of attracting pioneer settlers, an ordinance was passed in 1906 under which leases were granted on very liberal terms. No rent was payable for the first ten years, the heavy expense of survey was borne by the Government, and no charge was made for the preparation and registration of the leases ; that is to say, no payments whatever had to be made to the Government for 10 years. Under this system, the area under lease increased in four years from 2,089 acres to 363,425 acres ; about 140 plantations were started, and nearly 1,000 acres planted during that period.

After allowing free survey for three years, it was decided that all future applicants for agricultural leases exceeding in area 100 acres should be required to pay the cost of survey. It was also found desirable to check a tendency amongst a proportion of land applicants to obtain areas so great that the improvement conditions could not be carried out. It was therefore enacted that no leases should be granted after 1st June, 1910, exceeding 5,000 acres in extent, and that rent at the rate of 3d. per acre must be paid from the commencement on all leases exceeding 1,000 acres in area. As a result of these enactments, several leases have been forfeited. On the other hand, a stricter enforcement of improvement conditions has resulted in a substantial raising of the standard.

2. *Land Tenures.*—On 30th June, 1920, the lands of the Territory were held as follows :—

	Acres.				
Area of land held by the natives	56,955,318
Area of Crown land	737,914
Area of freehold land	23,085
Area of leasehold land	229,283
Area of Territory	57,945,600

Private sales of land in the Territory have now practically ceased. The Government buys from the natives, and then leases to planters, who are forbidden to have direct dealings in land with Papuans. The position as regards leasehold tenures may be seen from the following table :—

AREA HELD UNDER LEASE IN PAPUA, 1916-17 TO 1920-21.

Year ended 30th June.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.
Land held under lease .. acres (as recorded)	227,476	224,010	218,951	230,002	229,283

Of the total area of 229,283 acres shewn above, the surveyed area was 190,122 acres, of which about 185,000 acres were agricultural leases, and about 5,000 acres were held under pastoral lease.

The area of land acquired by the Crown in 1920-21 was 45,590 acres.

The total area surveyed in the Territory is 22,524 acres of freehold, and 279,118 acres of leasehold.

§ 7. Progress of Papua.

1. Statistical View of Fourteen Years' Progress.—As already stated (§ 2, *supra*) the Territory was placed under the Commonwealth control on 1st September, 1906. The following table indicates the progress that has been made since that date :—

STATISTICAL SUMMARY, PAPUA, 1907 TO 1921.

Items.	Year ended 30th June.	
	1907.	1921.
White population	690	1,343
Native labourers employed (exclusive of Crown servants) ..	2,000	9,650
Number of white civil servants	65	132
Armed constabulary	185	250
Village constables	401	867
Territorial revenue	£ 21,813	98,175
Territorial expenditure	£ 45,335	146,827
Value of imports	£ 87,776	484,770
Value of exports	£ 63,756	172,672
Area under lease acres	70,512	229,283
Area of plantations acres	1,467	58,347
Meteorological stations established	3	16
Gold yield fine ounces	12,439	2,047
Copper ore shipped tons	137	255
Live stock in Territory—		
Horses	173	290
Cattle	648	(a) { 1,271
Mules	40	{ 56

(a) On 31st December, 1920.

3. THE TERRITORY OF NEW GUINEA.*

§ 1. German Activities in the Pacific.

1. *German Colonies in the Pacific.*—About 1857 the Hamburg firm of Godeffroy established itself in Samoa. Although not pioneers, the Germans acquired in time the trade supremacy and considerable land claims, and Apia became the base of the wider operations which Theodor Weber, Godeffroy's representative and German Consul-General in the Pacific, was planning in his country's interest. In 1874 the firm placed a trading station on the island of Mioko (Duke of York Group, to the east of New Britain). At about the same time they penetrated both the Caroline and Marshall Islands, seeking trade in copra and pearls, and recruiting labour for their plantations in Samoa. In Fiji, also, German interests were large, and there was a considerable German trade. Keen disappointment was felt in Germany when, in 1874, these islands were annexed by Great Britain.

In 1879 the Hamburg firm of Robertson and Hernsheim (afterwards Hernsheim and Co.) established a trading station at Makada (Duke of York Group); later it opened stations at Matupi (Blanche Bay) and other places in New Britain and New Ireland. The same firm founded the German South Sea Trading Coy. (*Deutsche Südsee Handels- und Plantagen-Gesellschaft*, usually known as "D.H.P.G."), which took over the station of the Godeffroy firm at Mioko (Duke of York Group) after the latter's failure in 1879, and established a number of stations at which native-grown copra and other products were collected and native labourers recruited for its plantations in Samoa. In 1883, 700 natives from New Britain and New Ireland were employed in Samoa, besides 1,500 in Queensland and Fiji.

The German Government during these years shewed no desire for territorial acquisitions. Bismarck, who was opposed to a colonial dominion, with its expenses of administration and deficits falling on the Empire's Budget, repudiated the annexation of New Britain, where in 1878 the commander of the war-ship *Ariadne* hoisted the German flag. The Reichstag taking a similar view in 1880 refused financial backing to the German South Sea Trading Company, and declared against the annexation of Samoa, then in the first stages of the convulsions caused by conflicting foreign influences. At the same time Bismarck was not indifferent to the interests of German merchants; German war-ships were frequently sent to visit the Pacific Islands; and, when the project of a Panama Canal shewed the importance of some of these groups on the great trade routes, the German Government entered into treaties with the natives for coaling stations at Naiafu in Vavau (Tonga Islands) (1876), at Jaluit in the Marshalls (1878), and at Saluafata in Samoa (1879).

It was not until the early eighties that the colonial movement in Germany gained sufficient strength to overcome the reluctance of Bismarck and the indifference or opposition of the Reichstag. In the summer of 1884 Bismarck promised protection to any establishments made by the newly founded New Guinea Company (*Neu Guinea Kompagnie*), which was organizing an expedition to eastern New Guinea. For some time the Australian colonies had been apprehensive of the intentions of the German Government in regard to New Guinea and the neighbouring islands, and individually and collectively had urged on Great Britain the necessity of protecting their own and Imperial interests by the annexation of non-Dutch New Guinea. Finally in April, 1883, the Government of Queensland went so far as to annex the territory on its own authority; an act which the British Government did not confirm, but which led to renewed negotiations between Great Britain and the Colonies, and to the meeting of the Intercolonial Conference of December, 1883, the precursor of the Federation of Australia.

Great Britain, while not intending that Germany should annex any part of New Guinea, believed the fears of the Colonies to be unfounded, and hesitated to act, prolonging negotiations on the financial aspect of annexation. Conversations at Berlin in the summer of 1884 shewed that the Germans intended to annex the New Britain Islands; and the British Government then decided to proclaim a protectorate over at least the southern shore of non-Dutch New Guinea, leaving the question of the northern shore for further discussion with the German Government. But in November, 1884, the

* The information contained in the Foreign Office Handbook dealing with "Former German Possessions in the Pacific" was largely drawn upon in the compilation of this sub-section.

New Guinea Company's expedition raised the German flag, not only in the New Britain Islands, but also at several points on the northern shore of non-Dutch New Guinea; and Bismarck, though he said "he had not precisely ordered" this to be done, decided to accept the *fait accompli*, on the ground that the British Government had limited its protectorate to the southern shore, and that in any case British interests were not affected by a German protectorate over the northern. There had been a misunderstanding which, it seems, was not purely accidental, but the British Government could only blame its own hesitation and want of perception, and, in view of the general political situation, and more particularly of the Egyptian difficulty, thought it wisest to recognise the German protectorate. In notes exchanged between Lord Granville and Count Münster in April, 1885, the boundaries of the spheres of the two Powers in New Guinea were fixed as nearly as possible along the line of the watershed.

In August, 1885, the German flag was hoisted at Yap in the Carolines, but Spain claimed the sovereignty, and her claim was confirmed by the Pope, who mediated between the two Powers. When, in 1899, Spain, at the conclusion of the war with the United States, having lost the Philippine Islands, had little interest in retaining the Carolines, this group, together with the Pelew and Mariana Islands (except Guam, which Spain had ceded in 1898 to the United States), was bought by Germany for £837,500.

In October, 1885, Germany took possession of the Marshall, Brown, and Providence Islands, and of Choiseul, one of the Solomon Islands.

In 1886 an agreement was made between Great Britain and Germany, by which their respective spheres were defined. The German sphere included the northern Solomon Islands (Bougainville, Isabel, and others), as well as the territories over which Germany had already proclaimed her protection.

In 1888 a German protectorate was proclaimed over Nauru (Pleasant Island).

In 1899 a further agreement was made by which Germany transferred to Great Britain the northern Solomons (except Bougainville and Buka, which Germany retained); and Great Britain renounced in favour of Germany all her rights in Western Samoa.

Germany was thus in possession, prior to the outbreak of war in 1914, of the following islands in the Pacific, whose areas were approximately as follows:—

NEW GUINEA PROTECTORATE—

The "Old Protectorate"—						Square miles.
Kaiser Wilhelm Land	..	..	..	..	..	70,110
Bismarck Archipelago, with Bougainville and Buka	..	..	..	..	..	21,700
The "Island Territory"—						
Caroline and Pelew Islands	..	..	..	..	..	550
Mariana Islands (excluding Guam)	..	..	..	..	..	241
Marshall Islands (including Nauru)	..	..	..	..	..	176
SAMOA	..	..	..	..	..	1,000
Total	..	..	..	..	..	93,777

2. Occupation by Australian and New Zealand Troops.—Immediately after the outbreak of war, expeditions were organized in Australia and New Zealand to occupy the German possessions in the Pacific. The expedition from New Zealand occupied Samoa, and on the 17th September, 1914, the Acting Governor of German New Guinea signed terms of capitulation with the Officer Commanding the expedition from Australia, by which (not having authority to surrender any portion of the German possessions administered by him) he agreed that all military resistance to their occupation should cease, and that the armed German forces then in the field should be surrendered. The Australian Commanding Officer agreed, on his part, that during the military occupation by the Australian forces "the local laws and customs will remain in force so far as is consistent with the military situation."

The principal posts in the "Old Protectorate" and the island of Nauru were shortly afterwards occupied by the Australian forces: the islands north of the equator (that is, the former "Island Territory," excepting Nauru) were, by arrangement between the British and Japanese Governments, occupied by the Japanese Navy.

§ 2. General Description of the Territory of New Guinea.

1. **Geographical Position and Area.**—The present Territory of New Guinea comprises that portion of the German New Guinea Protectorate which lay south of the equator (excepting only the island of Nauru, see F hereinafter), and which was known in German times as the "Old Protectorate." The principal islands (with their German names if these differ from those now in use) and their approximate areas are as follows:—

	Area according to Foreign Office Handbook. Square miles.	Area according to Deutsches Kolonial Lexikon. Square miles.
Mainland of New Guinea (Kaiser Wilhelm Land) ..	70,110	.. 70,140
Bismarck Archipelago—		
New Britain (Neu Pommern)	9,200	.. 11,740
New Ireland (Neu Mecklenburg)	5,000	
New Hanover (Neu Hannover)	380	
Admiralty Islands .. ..	..	.. 1,000
Total Area .. ..	..	.. 17,700
Solomon Islands—		
Bougainville	3,500	} .. 3,860
Buka	200	
Total Area of the Territory of New Guinea	91,810	.. 92,180

The most northerly of the islands (Anchorite Island) lies in about lat. 1° S.; the most southerly point of the Territory (the eastern part of its boundary with Papua) is in lat. 8° S.; its western boundary (with Dutch New Guinea) is the meridian of 141° E.; and its most easterly island (Tasman) lies in longitude 159° E. From north to south its greatest extent is nearly 500 miles; from east to west over 1,000 miles. Rabaul, the capital, occupies a central position; its distances from some of the principal out-stations are: from Madang, 440 miles; Eitape, 630 miles; Kieta, 270 miles.

2. **Mainland of New Guinea.**—The mainland of New Guinea (Kaiser Wilhelm Land) is the northern section of eastern New Guinea. Its interior is rugged and mountainous, with heights reaching to over 15,000 feet, and, with the exception of the principal rivers, the boundary with Papua along the parallel of 8° south latitude, and the northern part of the boundary with Dutch New Guinea, it is still unexplored. The mountain ranges approach the coast, leaving comparatively little land near sea level, but this narrow strip is very fertile. All trade and communications are by sea along the coast, and the interior is left almost wholly to the native population.

The coast-line, which is over 900 miles long, is in parts fringed with coral reefs, and there are many small, lofty islands along its course. Except for Huon Gulf in the little-developed east of the country there are no deep inlets. Langemak Bay has commodious anchorage in deep water, and Finschhafen has landlocked anchorage for small vessels. In Astrolabe Bay are two or three sheltered harbours, including Konstantinhafen, Friedrich Wilhelm Hafen (Madang), and Alexishafen, which are the best on the coast. There are many other anchorages fit for schooners and small steamers in certain winds.

There are many rivers, of which the most important are the Sepik (Kaiserin Augusta) and the Ramu (or Ottilien). The Sepik rises near the junction of the boundaries with Dutch New Guinea and Papua, and flowing easterly reaches the coast in latitude 4° S. It has not been fully explored, but was found in September (not the wettest month) to be about 270 yards wide and 12 feet deep within 60 miles of the Dutch border. As it approaches the sea its tendency to divide and form islands, sandbanks, and lagoons reduces the depth to under 30 feet, but there is no actual sandbar. It is navigable for over 250 miles by vessels of 600 tons; and in the rainy season flat-bottomed paddle steamers can ascend for more than 400 miles.

The Ramu rises in the most southerly part of the Territory and, flowing northwards, enters the sea near the mouth of the Sepik. It is navigable by small steamers for a considerable distance, and was expected by the Germans to prove of great value as a waterway.

3. **Bismarck Archipelago and Solomon Islands.**—The islands of the Bismarck Archipelago and the Solomons are in general mountainous, with level ground only near the coasts. The only low-lying islands are some of the Duke of York Islands and Admiralty Islands. The islands of Bougainville and Buka (Solomons) are equally rugged; Bougainville contains mountains reaching 10,000 feet. The soil is usually fertile, except on the low coral islands, where fresh water is scarce.

The coasts of the large islands generally rise fairly steeply from the water, with bold headlands; but as a rule there is a beach, often overgrown with mangroves. Sunken rocks and coral reefs fringe many of the coasts, especially of the low islands.

There are many good harbours, the chief being Blanche Bay, in New Britain, containing the good anchorages of Matupihafen and Simpsonhafen, and Kaewieng Harbour, in New Ireland, Mioko in the Duke of York Islands, Peterhafen in the French Islands, Nares Harbour in the Admiralty Islands, and Queen Carola Harbour in Buka Island.

Most of the streams in these islands are too shallow and too rapid for navigation.

§ 3. Climate and Health.

1. **Climate.**—Throughout the Territory (except on the mountains) the climate is hot and moist all the year round. On the mainland, the mean temperature along the coast is about 80° F., with high humidity. There is no cool season, and rain falls in all months. In Astrolabe Bay and in the west of the country the heaviest fall is from November to March, a season during which north-westerly winds prevail. In the east, round Huon Gulf and Finschhafen, the rainiest season is from May to September. The annual rainfall on the coast is from 100 to 150 inches. In the Bismarck Archipelago the climate is much the same as on the mainland, except that during the prevalence of the south-east trades from May to September or October there is a comparatively dry season. November to March is the period of torrential downpour, accompanying north-west winds and occasional calms. The islands are outside the area of typhoons.

The following are results of observations taken at Rabaul during the period July, 1916, to December, 1920 :—

	°F.
Dry bulb (shade) temperature—	
Average monthly mean	84·2
Highest monthly mean	89·8
Lowest monthly mean	63·7
Highest reading	100·0
Lowest reading	61·0
Wet bulb (shade) temperature—	
Average monthly mean	77·4
Highest monthly mean	81·1
Lowest monthly mean	75·0
Average humidity	70·5
Rainfall—	
Yearly average (1917–1920)	85·6 inches
Highest in one month	27·5 inches
Lowest in one month	0·4 inches
Yearly average number of days on which rain fell	163 days
Greatest number of days on which rain fell in one month	23 days
Smallest number of days on which rain fell in one month	2 days
Greatest fall in 24 hours	8·76 inches

2. **Health.**—The Territory presents great opportunities for the sanitarian, and, until measures can be taken to check diseases now endemic, it will remain unhealthy for Europeans. Malaria, dysentery, and blackwater fever are prevalent among the white population, and in the past the death rate has been high. For instance, during the years 1890 to 1898 the death rate among the whites averaged 62 per 1,000 per annum. In 1909, however, it was only 24, and in 1910, 21 per 1,000. (For health of natives see §7.)

Apart from diseases, the climate on the mainland, and at many places in the Bismarck Archipelago, is enervating for Europeans. Much improvement, however, can be expected from systematic sanitation; and the mountains in this and the neighbouring Territories may, especially when flying has become easier, do much to solve the problem of residence for whites.

§ 4. German Administration.

1. *German Colonial Policy.*—Possession was taken of New Guinea as a protectorate (Schutzgebiet), and such it remained during the whole period of German rule. It was not until 1899 that the German Government assumed full control of the administration.

German colonial policy in its inception under the guidance of Bismarck took the form of "diplomatic guardianship," that is to say, the protection by the State of business interests created by German merchants. The Imperialistic idea of a field of employment for the educated talent of the Empire was a later growth. Hence, when the problem of organizing government in the new colonial possessions was first broached, Bismarck's idea was to administer them through chartered companies on the model of some of the English dependencies, thus leaving to the merchants the work of material development. This method commended itself to him not only because it did not commit the State so directly, but also on the ground of economy.

2. *The New Guinea Company.*—By Imperial charter of May, 1885, sovereign rights over New Guinea and the Bismarck Archipelago were conferred on the newly-founded New Guinea Company; and in December, 1886, the German Solomon Islands were added to its sphere. The company was to establish and maintain government and judicial organization, and in return received all regalian rights under the supervision of the German Government. Its path was not a smooth one, neither were its administration nor its attempts at economic development successful, and in 1889 the Imperial Government stepped in and took over the collection of taxes and duties, the Company meeting the cost. Three years later the Company resumed control and administered the possessions until 1899, when, convinced that the task was beyond its strength, it surrendered its sovereign rights for four million marks and certain other concessions, and became merely a privileged trading Company. Throughout it had lacked capital, prestige, and moral support. It had had misfortunes; it lost heavily in trying to arrange adequate shipping communications; and an epidemic in 1891 carried off half its officials. Its administration was marred by excessive centralization in the Berlin management; its service was unpopular; and incomplete cadres and continual changes in the staff produced a fatal instability in the local government, which may have been one reason for its failure to get into touch with the natives. Unsuccessful as it was, it must be remembered that it held a vast territory for Germany, while opinion at home developed in favour of a more active colonial policy.

On the economic side the Company carried out some of the explorations and experiments in the choice of places for settlements and plantations, which are the necessary preliminary work in colonization. It founded a number of stations—Stephansort (1888), Friedrich Wilhelm Hafen (now Madang) (1891), and Berlinhafen (now Eitape) (1894); but its economic enterprises were often costly and attended with little success; and, while failing itself, it impeded private effort. In the Bismarck Archipelago, where the first German plantation had been established in 1882, improved administration produced better relations with the natives, and a firmer foundation was laid for subsequent expansion.

In the Marshall Islands also company government was established. In December, 1887, the firm of Robertson and Hensheim and the D.H.P.G., which controlled the trade of the group, formed the Jaluit Company. In 1888 financial control was delegated by the German Government to this Company, and it was arranged that Imperial officials should carry on the administration, the Company defraying the cost and receiving in return exclusive authority and the monopoly of the pearl fisheries and of mining for phosphate rocks in the islands of the group (which included Nauru). A very simple administration was set up, with a Commissioner at the head, who was required to act with the advice of the Company. The arrangement worked well; there was no trouble with the natives; and the Company, confining itself chiefly to the copra trade, made good profits. In 1901 the privileges enjoyed by the Jaluit Company in the Marshall Islands were extended to the eastern Caroline Islands.

3. **Imperial Administration.**—In 1899, when the Carolines and part of Samoa were annexed, and the New Guinea Company surrendered its sovereignty, the Imperial Government undertook the direct administration of all its Pacific possessions, except the Marshall Islands, where the Jaluit Company ruled as before until 1906. For administrative purposes they were divided into Samoa and New Guinea, which included all the German possessions in the Western Pacific. The system of government was simple and authoritative. The Governor, appointed by the Emperor, had wide powers, unrestricted by local legislatures, and assisted only by a Council which was little more than advisory. In New Guinea Old Protectorate (*viz.*, the Bismarck Archipelago, Solomon Islands and Kaiser Wilhelm Land), he was assisted by a Judge, and the territories were divided into eight districts—Rabaul, Kaewieng, Namatanai, Kieta, Manus, Friedrich Wilhelm Hafen, Eitape, and Morobe—administered by local magistrates. Order was maintained by a native police, commanded by German officers. The seat of government was at Rabaul, whither it was transferred from Herbertshohe in 1908-10. Rabaul, situated on Blanche Bay in the extreme north-east of New Britain, occupies a well chosen site and possesses many natural advantages, especially in its deep, spacious and safe harbour, and its central position. The town was well laid out. The streets were planted with avenues of shade-trees, and the Government buildings and bungalows were of a good type of tropical architecture. There was an extensive and beautiful botanic garden, which has been maintained with equal pride by the Australian Administration.

In the New Guinea island possessions—*viz.*, the Caroline and Marshall Islands—there were Vice-Commissioners acting under the Governor at Rabaul. The seat of government for the eastern Carolines was at Ponape; for the western, with the Pelew and Mariana Islands, at Yap; and for the Marshall Islands, at Jaluit. Samoa was divided into two administrative districts—Upolu and Savaii. The Governor resided at Apia, in Upolu, and was assisted by an Imperial Judge. There was a native High Chief and a native Council; and here, as also in New Guinea, some use was made of native chiefs in the administration.

The German Government sent some of the best men in the home and colonial services to its Pacific Protectorates. Several of the Governors were men of high distinction, and had highly trained staffs. The number of officials in the portions of the Protectorate of New Guinea now administered by the Commonwealth was, in 1911, 61, and in 1914, about 125.

An account of the organization of the German Administration will be found in the report to the League of Nations on the Administration of the Territory from September, 1914 to 30th June, 1921.

4. **Revenue.**—The colonial revenue came mainly from the business tax, Customs duties on imports and exports, and the native head tax. Constitutionally the colonies were not integral parts of the German Empire; they did not belong to the Customs Union, and were not subject to general laws regulating taxation. Until 1893 they were charged import duties like foreign countries, but from that time they enjoyed most-favoured nation treatment.

Throughout the period of the direct control of the German Government the revenue was insufficient to balance the expenditure. Although during the last years of the German Administration revenue was increasing rapidly and was probably approaching the expenditure required for maintenance, it was still far short of the amount required for development. Subsidies, both for maintenance and development, were accordingly granted by the Imperial Government, and there was no local debt. In 1909 (the last year for which separate accounts were kept for the old Protectorate and for the island territory) the Customs revenue of what is now the Territory of New Guinea was £27,650, and the revenue from taxes and other sources £8,750, making a total revenue raised in the Territory of £36,400; and the Imperial subsidy was £52,150. In 1913 the revenue for the whole Protectorate was £46,750 from Customs, and £39,150 from taxes and other sources, a total of £85,900; and the Imperial subsidy was £69,450. The Imperial subsidy granted to the Protectorate to 1914 (including subsidy in respect of the islands north of the Equator for the years 1910 to 1914) amounted to about £800,000. For details of revenue, subsidy and expenditure, see Table XVI.*

* It is interesting to notice that the grants and loans made, and other developmental expenditure, by the Australian Government before Federation, and afterwards by the Commonwealth Government to the Government of British New Guinea (Papua), amounted, up to 1914, to about £522,000, and to 1921, to about £952,000.

§ 5. Australian Military Occupation.

1. **General.**—German New Guinea remained in military occupation by the Australian Forces from September, 1914, until May, 1921. The Government of the country was carried on by the officer commanding, as Military Administrator, and all posts in the former civil administration were filled by members of the Forces. The Government was conducted on much the same lines as in German times, as the terms of the capitulation by which local laws and customs were to remain in force so far as consistent with the military administration, as well as the restrictions imposed by general practice on the powers of a military occupant, prevented any great changes from being made. It was accordingly the principal object of the Australian Government to maintain the existing state of affairs in the Territory, until its future control should be decided at the end of the war.

Both executive and legislative power in the Territory were vested in the Administrator, subject to instructions from the Minister for Defence. A large number of Ordinances was made by the Administrator in pursuance of his military powers, most of them concerned with the routine affairs of government.* Perhaps the most noteworthy of the changes introduced by the Military Administration was in the treatment of native labourers (see § 8 hereinafter).

Germans resident in the Territory were, for the most part, allowed to remain during the military occupation. Civil officials were, however, allowed to return to Germany, but certain planters and others whose conduct was unsatisfactory were deported to Australia. In all, 278 German subjects left the Territory during the military occupation.

Most of the planters, and the large companies which owned plantations, carried on their business as usual; but they could not remit their profits to Germany, and accordingly, expended a large proportion of them in the Territory in making new plantations. The result was that the area under coconuts, 76,845 acres in 1914, grew by December, 1918, to 133,960 acres. The exports from the Territory were much interrupted by difficulties in shipping and marketing, but a very large increase over the amount in German times was becoming visible.

Imports to the Territory also grew rapidly. From £425,026 in 1913 the value increased to £588,793 in 1920; and with this increase grew the revenue of the Territory, of which Customs duties were the principal part.

In 1919 it was decided by the principal Allied and Associated Powers that the Territory of New Guinea, which Germany gave up as one of the terms of peace, should be entrusted under Mandate from the League of Nations to the Government of the Commonwealth. The issuing of the Mandate was, however, delayed; and it was not until 17th December, 1920, that its terms were settled, and the Mandate itself did not reach Australia until April, 1921. During this period the Government had to remain in form a military one, and subject to the limitations imposed by the terms of capitulation.

The Treaty of Peace provided that German nationals resident in her former colonies might be repatriated; and that the property rights and interests of German nationals in former colonies might be retained and liquidated by the Allies, the proceeds being credited to Germany in part payment of the reparation payable by her under the Treaty.

In pursuance of these powers, in September, 1920, the property of the principal German companies in the Territory, and in March, 1921, that of a large number of German planters, was vested in the Public Trustee; and the management of their businesses and plantations was entrusted (pending the sale or other disposal of the properties) to the Expropriation Board. The total value of the properties expropriated was estimated in 1920 at about £4,000,000; owing to the decline in the price of copra, the present value is probably much less. The sum realised on the disposal of the properties will be treated as part payment of the moneys due by Germany to the Allied Governments for reparation, and will be apportioned according to the Agreements relating to reparation. About 150 Germans, who lost their former employment with German companies or whose properties have been expropriated, left the Territory up to June, 1922.

* A classified list of the legislation of the Military Administrator will be found in the Report to the League of Nations on the Administration of the Territory from September, 1914, to 30th June, 1921.

§ 6. Civil Government.

1. **Mandate.**—The Mandate for the Territory is as follows :—

THE COUNCIL OF THE LEAGUE OF NATIONS —

Whereas by Article 119 of the Treaty of Peace with Germany signed at Versailles on June 28th, 1919, Germany renounced in favour of the Principal Allied and Associated Powers all her rights over her oversea possessions, including therein German New Guinea and the groups of islands in the Pacific Ocean lying south of the Equator other than German Samoa and Nauru; and

Whereas the Principal Allied and Associated Powers agreed that in accordance with Article 22, Part I. (Covenant of the League of Nations), of the said Treaty, a Mandate should be conferred upon His Britannic Majesty to be exercised on his behalf by the Government of the Commonwealth of Australia to administer New Guinea and the said islands, and have proposed that the Mandate should be formulated in the following terms; and

Whereas His Britannic Majesty, for and on behalf of the Government of the Commonwealth of Australia, has agreed to accept the Mandate in respect of the said territory and has undertaken to exercise it on behalf of the League of Nations in accordance with the following provisions; and

Whereas, by the afore-mentioned Article 22, paragraph 8, it is provided that the degree of authority, control or administration to be exercised by the Mandatory not having been previously agreed upon by the Members of the League, shall be explicitly defined by the Council of the League of Nations,

Confirming the said Mandate, defines its terms as follows :—

ARTICLE 1.

The territory over which a mandate is conferred upon His Britannic Majesty for and on behalf of the Government of the Commonwealth of Australia (hereinafter called the Mandatory) comprises the former German Colony of New Guinea and the former German islands situated in the Pacific Ocean and lying south of the Equator, other than the islands of the Samoan group and the island of Nauru.

ARTICLE 2.

The Mandatory shall have full power of administration and legislation over the territory subject to the present mandate as an integral portion of the Commonwealth of Australia, and may apply the laws of the Commonwealth of Australia to the territory, subject to such local modifications as circumstances may require.

The Mandatory shall promote to the utmost the material and moral well-being and the social progress of the inhabitants of the territory subject to the present mandate.

ARTICLE 3.

The Mandatory shall see that the slave trade is prohibited, and that no forced labour is permitted, except for essential public works and services, and then only for adequate remuneration.

The Mandatory shall also see that the traffic in arms and ammunition is controlled in accordance with principles analogous to those laid down in the Convention relating to the control of the arms traffic, signed on September 10th, 1919, or in any convention amending the same.

The supply of intoxicating spirits and beverages to the natives shall be prohibited.

ARTICLE 4.

The military training of the natives, otherwise than for purposes of internal police and the local defence of the territory, shall be prohibited. Furthermore, no military or naval bases shall be established or fortifications erected in the territory.



ARTICLE 5.

Subject to the provisions of any local law for the maintenance of public order and public morals, the Mandatory shall ensure in the territory freedom of conscience and the free exercise of all forms of worship, and shall allow all missionaries, nationals of any State Member of the League of Nations, to enter into, travel and reside in the territory for the purpose of prosecuting their calling.

ARTICLE 6.

The Mandatory shall make to the Council of the League of Nations an annual report to the satisfaction of the Council, containing full information with regard to the territory, and indicating the measures taken to carry out the obligations assumed under Articles 2, 3, 4, and 5.

ARTICLE 7.

The consent of the Council of the League of Nations is required for any modification of the terms of the present mandate.

The Mandatory agrees that if any dispute whatever should arise between the Mandatory and another Member of the League of Nations relating to the interpretation or the application of the provisions of the Mandate, such dispute, if it cannot be settled by negotiation, shall be submitted to the Permanent Court of International Justice provided for by Article 14 of the Covenant of the League of Nations.

The present Declaration shall be deposited in the archives of the League of Nations. Certified copies shall be forwarded by the Secretary-General of the League of Nations to all Powers Signatories of the Treaty of Peace with Germany.

Made at Geneva the 17th day of December, 1920.

2. New Guinea Act.—In anticipation of the issuing of the Mandate, the Commonwealth Parliament had already, in September, 1920, passed the New Guinea Act 1920, by which the Governor-General was authorized to accept the Mandate when issued. The Territory was, by the Act, declared to be a Territory under the authority of the Commonwealth, by the name of the Territory of New Guinea.

The Act provided that there should be an Administrator, who should be charged with the administration of the Territory. The power to legislate for the Territory was to be exercised by the Governor-General; and no Council—legislative, executive, or advisory—was provided for.

The Act also provided for the observance of the safeguards in the interests of the natives set out in the Mandate, and by it forced labour was absolutely forbidden.

3. Establishment of Civil Government.—On receipt of the Mandate, arrangements were made by the Prime Minister, under whose control the administration of the Territory was placed, for the establishment of Civil Government; and on 9th May, 1921, a proclamation was issued in Rabaul that the military occupation had that day terminated. On the same day the first Ordinances made by the Governor-General under the New Guinea Act 1920 came into force. The most important of these was the *Laws Repeal and Adopting Ordinance 1921*, which provided that German laws should cease to apply to the Territory, and substituted other statute laws (see paragraph 4. Statute Law, below), together with the principles and rules of common law and equity in force in England, as the basis of the law of the Territory, subject to modification by Ordinance made by the Governor-General.

The Ordinance also preserved the rights of natives in land, and the existing rights, privileges and customs of the natives in regard to cultivation, barter, hunting, and fishing; and it provided that tribal institutions, customs, and usages should continue, so far as they were not repugnant to the general principles of humanity.

Other Ordinances which came into force on the same day provided for the establishment of courts of law, and for the prohibition of the supply to natives of firearms, ammunition, intoxicating liquor, and opium.

4. **Departments and Districts.**—The Administration is organised in 10 Departments—Government Secretary, Government Printer, Justice, Treasury, Audit, Land and Survey, Native Affairs, Trade and Customs, Agriculture, Health.

For administrative purposes, the Territory is divided into ten Districts, named after the principal stations in them, as follows:—In New Britain—Rabaul, Talasea, and Gasmatta; on the Mainland—Morobe, Madang, and Eitape; in New Ireland and New Hanover—Kaewieng and Namatanai; in Admiralty Islands and adjoining islands—Manus; in Solomon Islands—Kieta. Each District is under a District Officer, assisted by a small staff.

There are about 180 persons in the service of the Administration, and their salaries aggregate about £103,000 per annum. Under the provisions of the *Public Service Ordinance* 1922, a Royal Commission has been appointed to classify the service; on the completion of this work permanent appointments will be made. There is as yet no system of training for the service; applicants are chosen from persons who apply on advertisement, and in practice only returned soldiers are selected, except for special posts. Besides those in the service of the Administration, about 320 persons are employed by the Expropriation Board (see § 5).

5. **Statute Law.**—The Acts of the Commonwealth Parliament do not (unless expressly so stated) extend to the Territory. The *Laws Repeal and Adopting Ordinance* 1921 provided that certain Acts and Ordinances should be applied to the Territory. The state of the statute law in force in the Territory on 30th June, 1922, may be summarised as follows:—

(a) Six Acts of the Commonwealth Parliament (the New Guinea Act, the Acts to enforce the Treaties of Peace, the Air Navigation Act, and the Patents Act) extend to the Territory of their own force. Portion of the Navigation Act also extends to the Territory, but no provision has been made for its enforcement.

(b) Thirty Acts of the Commonwealth Parliament apply to the Territory by virtue of Ordinances made by the Governor-General.

(c) Four Acts of the Queensland Parliament, as well as the Acts and Statutes of England in force in Queensland on 9th May, 1921, apply to the Territory by virtue of Ordinances made by the Governor-General.

(d) Nineteen Ordinances of the Territory of Papua apply to the Territory by virtue of Ordinances made by the Governor-General.

(e) About sixty Ordinances, Orders, and Proclamations of the Military Administration remain in force.

(f) About forty Ordinances have been made by the Governor-General under the New Guinea Act 1920, subsequently to the establishment of civil government. The most important of these are noticed in 3 *ante*.

The Acts of the Commonwealth and Queensland Parliaments, the Ordinances of Papua and of the Territory, and the regulations under them, are being collected for publication as the first three volumes of the Statute Laws of New Guinea.

6. **Revenue and Expenditure.**—The revenue for 1921–22 was £216,556,* and the expenditure £235,697.* (For details see Tables XVII. and XVIII.)

The largest source of revenue is Customs (import and export) duties, which in 1921–22 yielded £88,512. The tariff (published in the *New Guinea Gazette*, 17th November, 1921) is at the general rate of 10 per cent. ad valorem on imports, with special duties on alcoholic liquors and tobacco; on exports, there is a duty of 25s. per ton on copra (the duty was 10s. under the German Government), 10s. to £5 a ton on various marine products, and duties varying from 5s. each to £25 a pound on birds and plumage. The tariff, both on imports and exports, applies equally whatever the country of origin or destination; and imports from the Territory do not receive preferential treatment in the Commonwealth.

* Subject to revision.

There is a Business Tax of $1\frac{1}{2}$ per cent. of the gross receipts of traders, and an Income Tax of $1\frac{1}{2}$ per cent. of the gross income of persons not liable to Business Tax in excess of £300 for single and £400 for married persons. The Business Tax applies now to transactions in copra, which were formerly exempt. The yield of these taxes in 1921-22 was £7,750.

Stamp duties are imposed on cheques, receipts, bills of exchange, and other commercial documents; succession duties on the estates of deceased persons: and there are a number of licence and other fees.

Taxes on natives are dealt with in § 7, Natives.

There is a good prospect that the Territory will be able, from its own revenues, to maintain the Administration; but loans will be necessary for developmental works.

7. Report to the League of Nations.—The first Report* to the League of Nations (rendered partly in response to a resolution of the Assembly of the League, partly in compliance with Article 6 of the Mandate) was sent in May last, for the period from the commencement of the military occupation to 30th June, 1921. It contains a full account of the administration of the Territory during this period.

8. Economic Equality in the Territory.—The Mandate does not require, as in the case of the Mandates for the former Turkish and for the Central African possessions, that the Government shall provide equal opportunities for the trade and commerce of other countries. Nevertheless, nationals of foreign powers enjoy substantially the same privileges and opportunities as British subjects. In the laws applying to residents of the Territory, there is no distinction between British subjects and foreigners, except that foreigners are subject to the Aliens Registration Act and that they cannot purchase properties which are sold under the provisions of the Treaties of Peace. In overseas trade, the tariff applies equally to all countries, and shipping is subject to the same conditions whatever the country of registration. Trade between the Territory and Australia is open to foreign ships on compliance with the coastal trade provisions of the Navigation Act, and there is no discrimination against foreign ships in regard to trade within the Territory.

§ 7. The Natives.

1. Description.—The natives of the mainland are for the most part mixed Papuans and Melanesians, the former prevailing inland, and the latter along the coast. They are split up into many tribes, between whom, where Government influence has not been established, there is continual strife. The Germans found them unwilling to work, and labourers for the plantations had to be imported from other parts of the Territory, as well as from Java and China.

In the islands, the natives are chiefly Melanesians, but there are many racial elements which differ from one another in appearance, manners, customs, and speech. The Admiralty Islanders shew a Papuan and perhaps Polynesian admixture, and the natives in the extreme west of the Archipelago have Malay or even Chinese affinities. The natives of the Baining district in the north-east of New Britain speak a Papuan language. The small islands to the east of New Ireland, and the eastern coast of Bougainville shew Polynesian influence. (See map in Meyer's "Das Deutsche Kolonialreich," Vol. 2.)

Most of the islanders are energetic, and of good physique, with the exception of those on some of the smaller western islands, and the inhabitants of the Gazelle Peninsula (New Britain), who are weak and much diseased.

* Parliamentary Paper No. 3 of 1922.

The Buka Islanders were considered by the Germans to be the best workers, and were largely recruited for police duties. The Admiralty Islanders are also very virile and are good sailors.

In colour the natives vary from a light brown to an intense black. As a rule they live in permanent habitations constructed of light wooden frames with grass thatch. Especially in the Bismarck Archipelago and the Solomons they are assiduous cultivators and raise in their fenced gardens large quantities of taro, yams, bananas, sugar-cane, and coconuts. In some parts there are extensive sago swamps from which much food is obtained. On the sea coast fish are caught in ingeniously contrived traps. Pigs and wallaby furnish occasional supplies of meat.

Many languages are used in the Territory. The Germans made some attempt to encourage the use of German, but with little success. At the native school at Namanula, the dialect of the Blanche Bay natives was taught, with the idea of spreading it throughout the Protectorate, but this plan had made little progress when the school was closed in 1914. The "lingua franca" throughout the Territory was "bêche-de-mer" or "pidgin" English.

2. **Native Policy of German Government.**—In their treatment of the natives, the Germans allowed practices not tolerated in British Colonies. Abuses occurred in connexion with the recruiting of labourers for the plantations; and employers were allowed to flog their labourers for offences in relation to their employment. There was, indeed, a fundamental difference in outlook towards the natives between the German Government and that of the Governments of British Possessions, such as that of Papua. The German Government seems to have looked upon the native as a means to an end, that end being the development of the country solely in the interests of the European settler; whereas in British colonies the welfare of the native is usually regarded as being in itself of the first importance. Nevertheless, the German policy has been described by a well-informed missionary as being, on the whole, just and progressive.

The control of the natives by the German Government was carried out by District Officers, who were stationed at head-quarters in the various Districts into which the Protectorate was divided. These District Officers dispensed minor justice, and organized patrols throughout their districts for the purpose of collecting taxes in places where that was practicable, and of securing order amongst the native tribes, who were prone to wage war on each other.

It was the practice to ascertain the man of greatest influence in each community and appoint him "Luluai," or chief; a second native was chosen as "Tultul," or interpreter, through whom Government instructions were conveyed to the "Luluai," who was held responsible for their execution and for the general welfare of the people. There were very large areas, chiefly on the mainland, which were not under Government influence, and of which little was known. Although Government influence was much extended during the military occupation, there are still large areas in the islands which have never been visited by white men, and nearly the whole of the mainland is unexplored.

3. **Education of Natives in German Times.**—The education of the natives was left by the German Government to the missionaries, but they were able to reach only a small proportion of the population. In 1907 the Government opened a school at Namanula, near Rabaul, to give elementary education and to train the natives in handicrafts. Pupils came from all parts of the Protectorate, and in 1914 they had increased to 121. By 1913 it had become possible to employ ex-pupils in the offices and works of the Government. Before the outbreak of the war, plans were in preparation to establish a workshop at Rabaul for industrial training, and to open schools at out-stations. The results of the schools were of good promise, and encourage the hope that a considerable number of the natives may prove fit for training as clerks, artisans, motor drivers, and the like, if not for the lower grades of the professions.

4. **Native Affairs during the Military Occupation.**—When the Australian Forces occupied the Territory in 1914 a draft was found of an amending Native Labour Ordinance which the German Government was about to bring into force; and this formed the basis of the Native Labour Regulations enacted by the Military Administrator in 1915.

An important amendment in the German draft was, however, made by prohibiting the corporal chastisement of any labourer by any plantation owner or any person other than a Government official duly appointed in that behalf in pursuance of a Judge's order or the sentence of a Court. In 1919 the flogging of natives, under any circumstances whatsoever, was forbidden.

Other changes in regard to native labourers made during the Military Administration included the provision of additional safeguards in regard to recruiting; and attention was also given to the housing, food, clothing, medical attendance, and general comfort and well-being of natives working on plantations.

Despite the abolition of methods of force in compelling native labourers to work, the number of indentured labourers largely increased during the Military Occupation. In 1914, according to the German returns, there were 17,529 labourers on plantations; on 30th June, 1922, there were 26,619.

5. **Native Policy of the Civil Administration.**—Among the principal objects of the native policy of the Civil Administration are—

- (a) to stop the evils which in the past have been connected with recruiting;
- (b) to induce recruits to bring their wives with them;
- (c) to introduce more moral and cleaner surroundings and habits in village life;
- (d) to assemble isolated families into village communities;
- (e) by the institution of model villages to create in the native new and legitimate wants;
- (f) to introduce healthy amusements;
- (g) to extend the influence of the Administration into the interior;
- (h) to educate the natives in handicrafts and other callings;
- (i) by a campaign against hookworm and other diseases, and by attention to sanitation to improve the health of the natives; and
- (j) to encourage the development of native-owned plantations.

6. **Native Labour.**—The Commonwealth has two principal obligations in its government of the Territory. Under the Mandate it must "promote to the utmost the material and moral well-being and the social progress" of the natives; and it must see that the Territory makes its contribution of tropical products for the use of the world. With the performance of each of these obligations, the problem of the best method of making use of the labour of the natives is intimately connected.

Various views are held on this question. Some consider that the native should be encouraged to make plantations for himself, others that he should work as a labourer on plantations owned by white settlers. The latter method means, in the circumstances of New Guinea, that for the most part native labourers must be engaged under contract or indenture, breach of which is punishable by a Court, to serve for a term of years at a distance from their homes. Those who favour the encouragement of native agriculture point to the evils of life on plantations, and the damage to the maintenance of the population and the disintegration of village life caused by the absence from villages of a large proportion of the young men. They claim that the system of indenture is discredited and abandoned throughout the world, except in the Western Pacific, and that the experience of British Tropical Africa shews that the encouragement of native agriculture is likely to be more favourable to the welfare of the native and to result in a larger production.

Those who favour the plantation system claim that the natives have as yet so few needs that it is idle to expect that they will produce more than they can consume, that life on a plantation is, in the circumstances of the Territory, the best means of introducing the native to civilization, and that natives who work on plantations are, by better feeding and by medical attention, made physically stronger and kept in better health than those who remain in the villages. They also point out that the natives formerly led a strenuous life of fighting, cultivation, and hunting, and that the peace of European government and the use of European tools, have done away with the need for strenuous action. Some new activity must be substituted unless the native is to perish; and this can best be found in labour on plantations.

The German Government favoured the plantation system, but there was also an active native agriculture. It was estimated in 1913, and again in 1920, that the output of native-produced copra reached 7,000 tons. It is only when the price is high that the product of the native plantations is brought readily to market; and steps have had to be taken by the Administration to compel natives to keep their plantations free from fallen coconuts, which attract pests.

The recruiting and employment of natives as labourers by Europeans is now regulated by the *Native Labour Ordinance* 1922, which consolidated with some amendments the Native Labour Ordinances of the Military Occupation. The Ordinance applies to all employment of natives by Europeans, except of local natives living within twenty miles of the place of employment and working as day labourers for not more than three months. The recruiting of natives is allowed only for employment in the Territory or in Nauru; and there are strict safeguards in regard to the removal of natives from the Territory. Natives may be recruited only if in good health, or full physical development, and if not under the age of twelve, or if not decrepit from age. Girls and women may not be recruited, except in the case of married women with the consent of and for work at the same place as their husbands; if unmarried, except for domestic service and with the special consent of the Administrator.

Persons acting as recruiters for others must to be licensed; and ships used for recruiting must be licensed and must comply with the requirements of the Ordinance as to deck space and medical supplies. The amount of recruiting bonuses allowed to be paid to chiefs is limited to £1, 15s. and 10s. in respect of each native recruited for three years, two years and one year respectively. Penalties are provided for fraud, wilful or grossly careless misrepresentation, and intimidation towards a native for the purpose of inducing him to recruit.

Natives must be examined by a medical officer or medical assistant, and attend before a District Officer for approval and registration of their contracts before they commence work. The ordinary period for a contract of service is three years; if employed by the Administration, five years.

The Ordinance prescribes the scale of rations, the conditions of housing and the cooking arrangements to be provided by employers. The working hours on plantations and in industrial work are not to exceed ten daily, and, except in cases of necessity, natives must not be required to work on Sundays. Employers are required to provide blankets, a bowl, a spoon, and locked box. Accidents are to be reported. No punishment of employees by the employer is permitted, except the withholding of the weekly ration of tobacco, and this is to be reported to the District Officer. Any person in authority over a labourer who assaults or maltreats him is liable to £50 fine or imprisonment for six months.

Wages are fixed at a minimum of 5s. a month for male labourers, 4s. for females, and 3s. for boys under sixteen; the maximum is 10s., unless the native has special qualifications; wages are to be paid wholly in cash. Not more than one third of the amount earned may be paid at the end of each month: the balance is to be paid at the expiration of the period of service. Any overcharging of a native for goods bought by him is an offence.

All employers are required to provide medical attendance and medicines. Every employer of less than one hundred natives, who has not easy access to a hospital, is required to provide a suitable sick room capable of accommodating 10 per cent. of his employees; every employer of more than 100 natives must provide a hospital. An employer of more than 100 natives must have in his employment a person holding a first-aid certificate; if he employs more than 500 natives, he must provide the services of a duly registered medical practitioner, or employ a person having the qualifications of a medical assistant.

At the expiration of the contract of service, the native must be medically examined, his account examined and checked by the District Officer, payment of the amount due to him made in the presence of the District Officer, and the native returned at the employer's expense to his home.

7. Education of Natives.—The education of the natives has been left largely to the Missions (see below) and only a very small proportion have had any sort of schooling. Provision has, however, been made for Government schools. Employers of labour are required to pay 1s. a month for each labourer they employ; and the *Natives Taxes Ordinance* 1921 requires natives in prescribed districts, who are not serving under a contract of service but who are fit for work, and who have less than four children, to pay an education tax not exceeding 10s. a year. The proceeds of these payments go to the Native Education Trust Fund, from which schools are to be maintained.

8. Health of Natives.—The natives suffer from many diseases—malaria, tuberculosis, leprosy, filariasis, ankylostomiasis (hookworm), dysentery, many skin diseases, syphilis, yaws, and others. Their diseased conditions gave great anxiety to the German Government, which obtained many careful reports and had formed plans immediately before the war for the establishment of a pathological institute at Rabaul, and for an increase in the medical services.

The health of the natives has had close attention from the Civil Administration, and an interesting account of the measures taken is contained in the first report sent to the League of Nations. White medical assistants are being trained in the hospitals for work on plantations, and native orderlies for service in the villages are being trained at Rabaul in the treatment of hookworm and the dressing of wounds. A campaign against hookworm has been commenced with the assistance of the International Health Board of the Rockefeller Foundation. There are Government hospitals for natives at Rabaul (150 patients), Kaewiang (120), Kieta (100), Madang (70), Morobe (25), Eitape (60), Manus (50), Namatanai (80), Wanimo, Gasmatta and Talasea.

9. Missions.—There are a number of mission societies working in the Territory. The Society of the Sacred Heart of Jesus works in the Bismarck Archipelago, the Society of the Holy Ghost along the northern coast of the mainland from Alexishafen to the Dutch border, the Marists in Buka and Bougainville. These are Roman Catholic Missions. The Protestant Missions are the Australian Methodist Mission in New Britain and New Ireland, the Liebenzell Mission in the Admiralty Group, and the Rheinische Mission and the Neuendettelsauer Mission (now supported and staffed by the Lutheran Churches in Australia and America) which work along the coast of the mainland from Alexishafen to the Papuan border. All these societies combine teaching and planting with their missionary work. They conduct native schools, (which in 1912 had altogether about 12,000 pupils) and own extensive plantations. Between them they possess 80,705 acres of land of which, at the end of 1919, 16,571 acres were planted with coconuts. The number of Europeans engaged in mission work is about 250, of whom about 200 are Germans or Austrians (Holy Ghost Mission 71, Marist Mission 9, Sacred Heart Mission 88, Liebenzell Mission 1, Lutheran Mission 32). Some of the societies also have industrial schools in which intelligent natives and half-castes receive technical training, and three of the mission societies have small printing plants by which reading matter in one or other of the native languages is produced.

§ 8. Economic Development.

The Territory possesses great natural resources. The development of these has barely commenced; and a limit to economic progress is much more likely to be found in the scarcity of labour (see § 7) than in the exhaustion of resources.

There are no manufactures in the Territory, except of articles for native use.

1. *Agriculture*.*—The earliest traders contented themselves with the collection of native products (including copra), for which they exchanged "trade" goods. It was not until 1883 that the first plantation was laid out, at Ralum on Blanche Bay; the first plantation on the mainland was that of the New Guinea Company at Finschhafen, where the first settlement was placed in 1885.

The natives have been described as a people of peasant proprietors, and everywhere they practise a low form of agriculture. Their gardens afforded but a small amount of produce for oversea trade, and the exports of the Protectorate grew only as European plantations were made. Plantations extended slowly, for the Protectorate is almost everywhere covered with forest, and the clearing and planting of the land even if labour can be had, necessarily occupies considerable time.

In the early years of the Protectorate the demand for copra was much smaller than recently, and it was not foreseen that it would become the chief export. Experiments were accordingly made—principally by the New Guinea Company, which spent a large part of its capital in this work—with a number of tropical crops.†

Tobacco has been cultivated with success at Astrolabe Bay on the mainland, and in the Bismarck Archipelago. Plantation managers were brought from Sumatra, but the Dutch Government, fearing competition, forbade the New Guinea Company to take skilled native labourers to their new plantations. Labourers were ultimately obtained from China and the Straits Settlements, and by 1892 there were over 1,800 Malay and Chinese coolies on the mainland; but, owing to the heavy mortality, the number soon dropped to less than 1,000. By 1893 there were 500 acres under tobacco, and the export reached 77 tons. Tobacco of high quality, rivalling the best Sumatra leaf, is said to have been produced. Later, the growing of tobacco on European plantations was abandoned, partly, it is said, for want of intelligent labour, although it continued to be grown by the natives for their own use.

Cotton. The New Guinea Company also experimented in the growing of cotton, and it is said that a product of high quality was obtained. In 1896 the export amounted to 60 tons. In recent years this crop seems to have been almost abandoned; in 1921–22 exports of cotton to the value of £253 were recorded.

Sisal Hemp. There was a steady although small export of sisal hemp in German times. The quantity exported in 1913 was 10 tons, but none seems to have been exported since 1914. The principal plantation was at Konstantinhafen on Astrolabe Bay.

Cocoa has been successfully grown, principally at Witu (French Islands); in 1913, 137 tons were exported, in 1921–22, 152 tons.

Coffee has been grown with success, but there has been little production.

Rubber. Several kinds of rubber-yielding plants are indigenous on the mainland, and rubber (mostly of the ficus and hevea varieties) was cultivated in a few European plantations. Most of these were planted with ficus elastica before it was realised that hevea brasiliensis, which yields Para rubber, would give a more valuable product. The general opinion among the planters seems to have been that the cultivation of the coconut is a safer and better investment than rubber, because the coconut offered a less fluctuating margin between profit and loss, and did not necessitate the employment of as many labourers as were required on a rubber plantation. It was also

* For details of exports see Tables VII. and VIII.

† A detailed account of the early experiments in planting is given by Blum in his "Neu Pommern und der Bismarck-Archipel: Eine wirtschaftliche Studie." (Berlin, 1900).

thought that the New Guinea native was not well suited for the work of tapping, and the close and careful attention that rubber trees demand. In 1913, 17 tons, valued at £6,000, were exported; in 1920-21, the export was 29 tons, valued at £2,900.

Copra. None of the crops mentioned above has made any important contribution to the progress of the Protectorate. Its mainstay, in an increasing degree, has been the coconut palm. Indigenous in most of the islands, the coconut palm yielded copra to the natives from the beginning of European trade, and the plantations, commenced in 1882, steadily extended in area and product, until, in 1913, three-fourths in value of the total exports of the Protectorate consisted of copra. The quantity exported in that year was 14,000 tons; in 1918, it was over 20,000 tons; and during the three years ending June, 1922, it has averaged 23,700 tons. The area under coconuts increased during the Military Occupation from 76,845 acres in 1914 to 133,960 acres at the end of 1918. The coconut takes about eight years to come into bearing, so that this increase in area is only now commencing to affect the output. The price of copra at Sydney, which is the principal market for the output of the Territory, declined from the very high figure of £32 per ton in 1920 (average) to an average of about £17 in the last six months of 1921. Although there has since been a slight increase in price, the production both of plantation and native copra, which in 1920 promised to increase very rapidly, has been somewhat checked.

Other Crops. The climate and soil of the Territory are also suitable for the cultivation of rice, Manila hemp, cinchona, nutmeg, vanilla and maize. It has been proved that nearly all these can be grown successfully, but hitherto their cultivation has either not advanced beyond the experimental stage or has been attempted only on a small scale. Sugar-cane of many varieties flourishes, and the natives cultivate extensive areas for their own use; other indigenous food-producing plants include the sago palm, and the cassava plant (which yields arrowroot and tapioca and is used in the making of glucose).

Sources of Power Alcohol. It seems probable that alcohol for power purposes will be obtainable economically from the Territory. The sago palm and nipa palm yield as much as 60 gallons a ton, and in places are very abundant.

Area of Plantations. The areas of plantations in the various islands in 1918 are shown in Table XIII. It will be seen that nearly one-third of the total area was in New Britain (this was nearly all in the Gazelle Peninsula, in the extreme north-east of the island), and about one-quarter each in New Ireland and on the mainland. On the mainland most of the plantations are on the coast of the Madang District, especially on Astrolabe Bay. There are no plantations in Morobe District, and few in Eitape. In Bougainville most of the plantations are near the station of Kieta. Most of the smaller islands are planted; some of them are very fertile.

2. *Livestock.*—There is little natural pasture in the Territory, but the coconut plantations are now of a sufficient area to maintain numerous livestock. The last record of numbers seems to have been made in 1913, when there were 524 horses, 8 mules, 22 donkeys, 3,067 cattle, 225 buffaloes, 1,420 sheep, 870 goats, and 3,081 pigs (exclusive of the vast number of pigs kept by the natives). The horses were either of Australian origin, and more or less throughbred, or else they came from the Dutch Indies. From this parent stock horses were bred locally. A cross between the Australian horses and the "Macassars" has given a satisfactory result. The cattle represented a variety of breeds, such as Bali, Indian Zebu, Australian Jersey and Guernsey, and the small Javanese breed. They are principally used for keeping down the grass in the plantations, and for supplying native labourers with meat. Sheep are also kept principally for the sake of the meat. They are mostly of the Dutch-Indian breed, but Australian sheep have been introduced as an experiment, and the wool has, so far, retained its high quality. Pigs seem to thrive better in these parts than any other animal. In and near European settlements the Yorkshire and Berkshire breeds are now fairly common. The native pig is an inferior animal, but it is hardy, frugal, and fast growing. Crossed with the Yorkshire and Berkshire excellent results have been obtained.

3. **Timber.**—The timber resources of the Territory are not yet fully known. Both hardwood and softwood are found in several varieties, some of which are of excellent quality. In Bismarck Archipelago the areas of serviceable timber in sufficient quantities to be of commercial value do not appear to be extensive. The timber required for house and ship building and for other purposes is mostly obtained locally. On the mainland the Neuendettelsauer Mission and the Holy Ghost Mission both possess up-to-date saw-milling plants, while most of the timber required in the Archipelago is supplied by the Sacred Heart Mission's sawmill at the eastern end of New Britain.

The *Timber Ordinance* 1922 provides for the issue of permits and licences to cut timber. Timber growing on native lands cannot be acquired by private purchasers directly from the natives, but only through the Administration. A royalty (the amount to be fixed by regulation) is to be paid on all timber exported.

4. **Marine Products.**—The wealth of the waters of the Territory has so far been little exploited. Fish are caught at many places along the coast, but only to supply the small local demand of the natives and of the few Europeans living there. Pearl-shell is exported in fair quantities, while trepang, trochus, shark fins, and tortoise-shell are also articles of export. The value of the marine products exported during the three years ended 30th June, 1922, has averaged £26,800.

5. **Mining.**—There has been scarcely any mining in the Territory, and knowledge of the minerals is as yet but scanty.

Gold has been discovered in the Upper Ramu River, on the Waria River, which enters the sea near the Papuan boundary, and on the Francisco and Markham Rivers, both of which flow into the Huon Gulf. These deposits are in river alluvium and in small quartz reefs. Extensive concessions for gold mining on the Waria River were issued by the German Government shortly before the war, but no work has yet been done under them.

Osmiridium is found in Papua in streams draining the main range, and it will probably be found also in the Territory. It is reported to have been found on the upper tributaries of the Ramu.

Platinum has been reported from the Baining District in New Britain and from the Kabenau River flowing into Astrolabe Bay, but its occurrence is disputed.

Tin has been reported in the Baining District, but its occurrence has not been investigated on the spot.

Copper has been discovered in the form of chalcopyrite and malachite in the Baining District.

Sulphur occurs in several localities in the volcanic regions of the Territory. The deposits are not extensive so far as surface indications go, but are fairly pure and crystalline.

Iron occurs as magnetite in the Baining District, but the extent of the deposit is not known.

Lead, in the form of red oxide (minium) has been reported from the Baining District.

Phosphates suitable for use in the making of manures are found in the Purdy Islands (District of Manus).

Coal. Brown coal has been found on the mainland in the vicinity of Astrolabe Bay, and in the southern portion of New Ireland.

Mica has been reported to occur in fairly large sheets in the Baining Mountains.

Petroleum. It has been known for some years past that there were indications of mineral oil on the mainland; but it was not till 1921 that a thorough geological examination was made by a party of geologists under the joint control of the Anglo-Persian Oil Company and the Commonwealth Government. This party surveyed or determined prospects over an area of 2,000 square miles in the Eitape and Madang Districts. One of the areas examined in detail was about 50 miles of the coast of the Eitape District, including the outfall of the Wakip River, which enters the sea about 150 miles easterly from the Dutch frontier and on which oil seepages were previously known to exist. A small scale map of this area was made, and its geological

structure was studied in detail. As a result of their examination, the geologists reported that, while small quantities of oil could probably be obtained in the immediate vicinity of the main seepages, they believed that such operations could not repay outlay and working costs and they could not recommend a test well.

Further inland, in the basin of the Sepik River, although throughout a great thickness of beds no oil shows were found, geological conditions were more favorable. This region was traversed by a general strike line which passed also through the Wakde District in Dutch New Guinea, about 80 miles over the border, where oil was known to occur. The geologists therefore felt justified in submitting a plan for a further geological survey of the middle Sepik basin. The Commonwealth Government has announced that it favours the proposal to make additional surveys.

6. Water Power.—No survey has been made of the water power available in the Territory. It has been estimated that 10,000,000 horse-power are readily available in Papua, and as the mountainous portion of the main island included in the Mandate is similar in rainfall, height of catchment, and steepness of slope to the corresponding area in Papua, it seems certain that a very large quantity of power can be developed. Rivers suitable for developing power are found also in parts of New Britain and other islands.

7. Oversea Trade.—Details of imports and exports will be found in Tables V to X. It will be seen that during the five years ended 30th June, 1922, the imports have averaged £430,000 in value, and the exports £540,000. Copra amounts in value to 90 per cent. of the total exports; and the price received for it determines largely the amount of imports. Since the commencement of the military occupation, almost the whole of the trade has been with Australia.

8. Communications.—During 1921-22 the only regular communication with the outside world was by the subsidised mail services of Burns, Philp and Co. Ltd. Under a three years' contract commencing from 1st August, 1922, this company provides a service of two sailings every six weeks from Sydney, Brisbane and Cairns to Port Moresby, Samarai and Rabaul, a service of two sailings every six weeks from Sydney and Brisbane to ports in the British Solomon Islands and to Rabaul, and a service of one sailing every five weeks from Sydney and Brisbane direct to Rabaul. The steamers of this service carry almost the whole of the import and export trade of the Territory.

Within the Territory, the Administration maintains a service of small steamers which bring cargo from outports to the ports of call of the oversea steamers; and there are schooners and launches in private ownership.

Means of communication on land are scanty. There are no railways. Roads lead from Rabaul to places within 30 or 40 miles; there is a road 170 miles long in New Ireland. Elsewhere there are few roads outside plantations and the stations of the District Officers. The large rivers of the mainland are as yet but little used.

There is a high power wireless station at Bita Paka near Rabaul, and low power stations at Kieta, Manus, Madang, Eitape, and Morobe; since 1st July, 1921, all these have been placed under the control of Amalgamated Wireless (Australasia) Limited.

§ 9. Land.

1. Land Policy of the German Government.—The policy of the German Government regarding tenure of land shewed a preference for freehold tenure, in contrast to that in British possessions in the Pacific, in which settlers can usually obtain land from the Crown on lease only. On the mainland and in the larger islands of the Bismarck Archipelago land could easily be obtained by settlers of any nationality.

The authorities readily gave information as to available land, and assisted newcomers in obtaining labour. Good land was offered at from 5d. to 8s. per acre, and payment could be spread over several years.

The German Government established a colony of small planters, with 250 acres each, in the Baining District of New Britain. The project met with some success, but many of the settlers lacked the capital necessary to support the heavy initial expenses of cultivation in the South Sea Islands. It has been estimated that the cost of preparing forest land for agriculture amounts, on an average, to £60 per acre, and the small planter is further placed at a disadvantage by the interval that elapses before the most profitable crops, such as coconuts and cocoa, come to maturity. It appears, therefore, that the powerful company with large estates is destined to play the leading part in the agricultural development of the German possessions in the Pacific.

2. Land Alienated by the German Government.—The area sold by the German Government amounted to nearly 700,000 acres. The area in cultivation on 1st January, 1914, was 84,941 acres, of which 16,555 acres were on the mainland; and the area in bearing 27,995 acres, of which 5,236 acres were on the mainland. No estimate has yet been made of the area of land suitable for agriculture; but it is certain that the area already alienated, if planted to its full capacity, would be far greater than the present native population can cultivate.

The alienated land was held principally by large German companies and by Missions. The following particulars are taken from the Report of the Royal Commission on late German New Guinea (1919):—

Particulars.	Area Held.	Approximate No. of Plantations.	Area Planted (in 1919).
	Acres.		Acres.
Neu Guinea Compagnie	368,118	31	21,962
Hamburgische Südsee Aktien Gesellschaft ..	62,271	24	9,985
Hernsheim and Company	8,549	31	6,698
H. R. Wahlen and Company	14,129	..	8,648
Missions	80,705	..	16,571
Smaller planters and companies numbering about 150, of whom about 120 were Germans	163,407	..	81,115
	697,179	..	144,979

Under the military administration the sale of land was suspended.

3. Land Policy of the Civil Administration.—The *Land Ordinance* 1922 provides for sale as well as leasing of land belonging to the Crown. In permitting the sale of land, its policy is a departure from that usual in British possessions in the Pacific (including Papua), where leasing only of agricultural lands is permitted, but is a continuation of the German policy of selling land. The Government, however, has not yet announced whether sale or leasing is to be the usual practice; and the greater part of the *Lands Ordinance* is devoted to provisions for the leasing of lands.

All Crown grants or leases are to contain a reservation to the Crown of all minerals and of coal, shale and mineral oil. Leases are to be for a term not exceeding 99 years, except where a shorter period is provided.

Crown lands, except in towns, are to be classified by a Land Board into land suitable for agriculture (Class A) and land not so suitable (Class B), and the unimproved value of the land is to be assessed. In the case of agricultural leases for more than 30 years, the rent is to be 5 per cent. of the unimproved value, with power to remit during the first 10 years, and subject to re-appraisal every 20 years. The maximum area of land which may be held by any person under agricultural lease is not to exceed 5,000 acres, and the unimproved value is not to exceed £5,000. Pastoral leases of lands of Class B may be granted for terms not exceeding 30 years, at a rental of 2½ per cent. of the unimproved value, subject to re-appraisal every ten years. Agricultural leases

are to be subject to improvement conditions, and pastoral leases to stocking conditions. Leases of town allotments may be granted for terms not exceeding 99 years, at a rent to be fixed at such percentage of the unimproved value as is prescribed. Leases may be granted to Missions rent free.

4. **Registration of Titles.**—Under German law there was a system of registration of titles in a "Ground Book," somewhat similar to the Torrens system. It is intended to replace this by a system of registration closely modelled on that prevailing in Australia.

§ 10. Population.

1. **Europeans.**—The growth of the white population is shown in Table I. In 1914 the white population was 1,027. On 4th April, 1921, it was 1,288, of whom about 250 were missionaries, and 262 were troops engaged in administration; 715 were British subjects, and 583 were nationals of former enemy countries. At the present time the number of persons employed by the Administration and the Expropriation Board is about 500, and the number of ex-enemy subjects in the Territory is about 400, of whom about half are missionaries.

2. **The Natives.**—As a large part of the Territory is not under Government influence, and as even in the districts under Government influence it is difficult to make a complete count of the natives, it has not been possible to attempt any reliable estimate of the population. The results of partial counts made by the German Government in 1914, and by the Commonwealth Government in 1920, will be found in Tables III. and IV. In 1914 there were counted 152,075 natives; in 1920, 166,721 were counted and estimated; the area covered in each case being less than one-quarter of the Territory. In 1914, 98,399 were counted in the Bismarck Archipelago, and an estimate made of 54,500 others—a total of 152,899; in the Solomon Islands 18,141 were counted, and 23,500 others estimated—a total of 41,641. The total population, apart from the mainland, was, therefore, estimated at about 200,000. On the mainland 35,535 were counted in a narrow strip along the coast. There is no reliable means of estimating the population in the interior. The area of the mainland is about three-quarters of that of Papua, the population of which, on information fuller than has been gathered for the mandated Territory, but still very scanty, has been estimated at upwards of 250,000. Such information as can be gathered from reports of the few explorers of the interior raises a doubt whether the population is as dense as in Papua; and, considered as a source of labourers, it must be remembered that the population of the mountainous parts of the interior will probably not be suitable for work on coastal plantations.*

The population is known to have declined very seriously in New Ireland and in other parts of the Territory since the white man came to the islands. In other parts it is stationary; and there are occasional reports of slight increases. The causes are in part endemic diseases, in part diseases due to the white man, in part (according to some of the German reports) the influence of recruiting both on the social life of the villages and in encouraging the habit already prevalent among native women of refusing to bear children, and in part perhaps what has been described in Papua as the "feeling of rather hopeless uncertainty" produced in the native by the impact of white civilization.

3. **Asiatics.**—Malays seem to have been the first Asiatics to be brought by the Germans to German New Guinea; 37 of them are recorded on the mainland in 1885. About 1889 the New Guinea Company began to bring Chinese, Malays, and Javanese in growing numbers from Singapore and Java to work on its plantations; by 1892 there were about 1,800 on the mainland. By 1898 the number had decreased to 300 or 400.

About ten years later, Chinese from China were brought to the Protectorate; in 1911 there were 555, in 1914, 1,377, and in 1921, 1,424. The number of Malays and Javanese in 1914 was 163, and in 1921, 221. (See Table II.)

* In the last annual report, published by the German Government, the population of the Territory was estimated at 600,000. It cannot be said that the Australian Administration is yet in possession of information to confirm this estimate.

In 1895 there were 2 Japanese in the Protectorate, in 1911 there were 25, in 1914, 103, and in 1921, 87. The total Asiatic population was 1,681 in 1914, and 1,778 in 1921. There were also, in 1921, 28 Polynesians and 69 half-castes.

Under the German administration, Chinese, Malays, and other Asiatic labourers had a status somewhat superior to that of the natives. Japanese, although they had no rights under treaty (for the German-Japanese Treaty of Commerce and Navigation of 1911 did not apply to German New Guinea, as it was only a "Schutzgebiet"), had a status equal in many respects to that of Europeans. They could not, however, acquire land in freehold; but both they and Chinese (if able to read and write a European language) could obtain leases up to 30 years. Ordinances provided safeguards in the interests of Chinese and other non-indigenous natives brought to the Protectorate, and the German Government welcomed Chinese labourers, whose numbers were increasing rapidly before the war. The Government did not look so kindly on the immigration of large numbers of Japanese or on their acquisition of important interests in the Protectorate, but no obstacle seems to have been placed in the way of their entering the Protectorate.

The Chinese provide the skilled artisans and domestic servants of the Territory, and many of them are small traders. There is only one Japanese firm of any size, but it is not a serious competitor with European firms; most of the Japanese residents are employed in its plantations, shipyards, and stores.

The *Immigration Act 1901-1920* of the Commonwealth is in force in New Guinea.

§ 11. Statistical Summary.*

1. General.—The following tables give particulars of population, trade, etc., of the Territory over a period of years:—

TABLE I.—TERRITORY OF NEW GUINEA.—WHITE POPULATION, 1885 TO 1921.

1885	..	64	1896	..	228	1907	..	542
1886	..	97	1897	..	251	1908	..	647
1887	..	122	1898	..	262	1909	..	655
1888	..	148	1900	..	306	1910	..	687
1889	..	145	1901	..	301	1911	..	723
1890	..	164	1902	..	301	1912	..	822
1891	..	179	1903	..	396	1913	..	968
1892	..	186	1904	..	431	1914	..	1,027
1893	..	190	1905	..	461	1917	..	818(a)
1894	..	209	1906	..	532	1921	..	1,288(b)
1895	..	203						

(a) Does not include troops.
(census, 4.4.21.)

(b) Including 262 troops (engaged in Administration at date of

TABLE II.—TERRITORY OF NEW GUINEA.—ASIATIC POPULATION 1885 TO 1921.

Year.	Chinese.	Malays and Javanese.	Japanese.	Others.
1885	..	37	..	..
1890	..	114	..	..
1892	..	1,085	..	..
1895	..	480	2	..
1898	..	156	..	..
1907	..	400	52	..
1911	..	555	136	26
1914	..	1,377	163	38
1917	..	1,452	(a) 112	(a)
1921	..	1,424	87	46

(a) Not separately enumerated.

* The figures in the following tables for years prior to 1915 relate, unless otherwise stated, only to the portion of the former Protectorate of German New Guinea which is now included in the Territory of New Guinea. Better sources of information having become available since the article in Year Book No. 14 was written, it will be found that the figures, in some of the tables below, differ from those in that Year Book.

TABLE III.—TERRITORY OF NEW GUINEA.—NATIVE POPULATION ON 1st JANUARY, 1914. (a)

Islands.	Enumerated.					Estimated.	Total.
	Men.	Women.	Boys.	Girls.	Total.		
Bismarck Archipelago—							
New Britain, Duke of York, and French Islands—							
Gazelle Peninsula and adjacent islands	9,351	8,169	5,720	4,613	27,853	15,000	85,626
Remainder of New Britain ..	4,940	4,349	3,159	2,625	15,073	27,700	
Duke of York Group	886	799	726	638	3,049	..	
French Islands	867	794	516	346	2,523	..	
Total New Britain, etc. ..	16,044	14,111	10,121	8,222	48,498	42,700	91,198
New Ireland and New Hanover—							
District of Namatanal	4,758	3,687	1,757	1,537	11,739	2,500	28,988
District of Kaewieng	6,815	4,520	1,903	1,511	14,749	..	
Islands between New Ireland and New Hanover	354	254	127	76	811	..	
New Hanover	2,829	2,027	965	718	6,539	..	
St. Matthias, Squally Island and Tench Island	729	680	425	326	2,160	800	2,960
Fisher and Gardner Islands ..	1,629	1,179	378	297	3,483	..	3,483
Lihir Island	1,195	850	460	313	2,818	..	5,692
Tanga Island	547	452	135	107	1,241	1,000	
Anir (St. John) Island	277	200	82	74	633	..	
Total New Ireland and New Hanover	19,133	13,849	6,232	4,959	44,173	4,300	48,473
Admiralty and North Western Islands—							
Admiralty Islands	1,505	1,694	838	699	4,736	7,500	12,236
North Western Islands	409	381	186	116	992	..	992
Total Admiralty and North Western Islands	1,914	2,025	974	815	5,728	7,500	13,228
Total Bismarck Archipelago ..	37,091	29,985	17,327	13,996	98,399	54,500	152,899
Solomon Islands—							
Bougainville	3,983	2,855	1,187	1,135	9,160	23,500	32,660
Buka and adjoining islands ..	2,831	2,038	1,017	924	6,810	..	6,810
Nissan Island	567	499	300	196	1,562	..	1,562
Cartaret Island	104	122	85	80	391	..	391
Fead, Mortlock and Tasman Islands	82	71	46	19	218	..	218
Total Solomon Islands	7,567	5,585	2,685	2,354	18,141	23,500	41,641
The Mainland—							
District of Morobe	1,942	1,872	949	646	5,409	No estimate made	5,409
District of Eitape	2,346	1,643	1,022	713	5,724	..	5,724
District of Madang	8,169	7,249	4,985	3,999	24,402	..	24,402
Total Mainland	12,457	10,764	6,956	5,358	35,535	..	35,535
Grand Total for the Territory ..	57,115	46,334	26,918	21,708	152,075	78,000b	230,075b

(a) It has not yet been possible to make an enumeration or even an estimate for the whole Territory of the native population. This table contains the latest figures published by the German Government, the numbers enumerated being those in the areas under Government influence. The estimate for other areas, it will be seen, is incomplete, as no estimate was made for the Mainland, most of which was not under Government influence.

(b) Not including any estimate of the population of the Mainland not under Government influence.

TABLE IV.—TERRITORY OF NEW GUINEA.—NATIVE POPULATION
(ENUMERATED AND ESTIMATED) IN 1920. (a)

Islands.	Men.	Women.	Boys.	Girls.	Total.
Bismarck Archipelago—					
New Britain, Duke of York and French Islands—					
District of Rabaul	6,611	3,607	2,657	2,771	15,646
District of Kokopo (b)	12,009	9,257	4,780	4,512	30,558
District of Talasea (incomplete)	4,987	3,433	2,555	2,210	13,185
District of Gasmatta (incomplete)	1,414	731	365	365	2,875
Total New Britain, Duke of York and French Islands	25,021	17,028	10,357	9,858	62,264
New Ireland and New Hanover—					
District of Namatanai	5,281	3,674	1,435	1,432	11,822
District of Kaewiang	11,818	7,065	2,328	2,713	23,924
Total New Ireland and New Hanover	17,099	10,739	3,763	4,145	35,746
Admiralty and North Western Islands—					
District of Manus	5,119	4,011	1,227	1,399	11,756
Total Bismarck Archipelago	47,239	31,778	15,347	15,402	109,766
Solomon Islands—					
District of Kieta (incomplete)	12,724	8,872	3,534	3,438	28,568
The Mainland—					
District of Madang (incomplete)	5,282	3,770	2,496	1,966	13,514
District of Eitape (incomplete)	4,927	3,931	2,939	2,216	14,013
District of Morobe (incomplete)	4,293	2,819	2,532	2,115	11,759
Total Mainland	14,502	10,520	7,967	6,297	39,286
Grand Total for the Territory	74,465	51,170	26,848	25,137	177,620c

(a) The figures here given are in part enumerations and in part estimates. See note (a) to Table III.

(b) Now included in District of Rabaul.

(c) This total does not include any enumeration or estimate for large areas on the Mainland (Districts of Eitape, Madang, and Morobe), or for the portions of New Britain (Districts of Talasea and Gasmatta), and Bougainville (District of Kieta) not yet under complete Government control.

TABLE V.—TERRITORY OF NEW GUINEA.—IMPORTS AND EXPORTS,
1887 TO 1922.

Year.	Imports.	Exports.	Total.
	£	£	£
1887	17,133	19,580	36,713
1888	19,580	17,133	36,713
1889	19,580	18,601	38,181
1890	19,580	19,335	38,915
1891	21,049	21,391	42,440
1892	22,439	19,580	42,019
1893	24,475	22,028	46,503
1894	31,818	24,475	56,293
1895	35,734	24,869	60,603
1896	34,265	33,873	68,138
1897	36,713	31,352	68,065
1898	51,887(b)	45,969	97,856
1899-1900(a)	79,231	54,795	134,026
1900-1901(a)	78,941	39,013(b)	117,954

(a) Year ending 31st March.

(b) Bismarck Archipelago only.

TABLE V.—TERRITORY OF NEW GUINEA.—IMPORTS AND EXPORTS,
1887 TO 1922—*continued*.

Year.	Imports.	Exports.	Total.
	£	£	£
1901-1902(a) ..	81,027	68,668	149,695
1902-1903(a) ..	108,205	54,868	163,073
1903 ..	142,640	59,034	201,674
1904 ..	113,841	61,890	175,731
1905 ..	143,828	65,333	209,161
1906 ..	161,917	76,463	238,380
1907 ..	166,585	97,563	264,148
1908 ..	152,121	83,577	235,698
1909 ..	130,498	120,360	250,858
1910 ..	192,639	177,326	369,965
1911 ..	259,373	201,156	460,529
1912 ..	287,427	246,762	534,189
1913 ..	416,072(b)	393,404	809,476
1914 ..			
1915 (January-June) ..	78,759(c)	74,204	152,963
1915-1916 ..	175,002(c)	180,414	355,416
1916-1917 ..	205,373(c)	298,483	503,856
1917-1918 ..	258,040(c)	404,504	662,544
1918-1919 ..	271,861(c)	269,666	541,527
1919-1920 ..	506,767(c)	849,422	1,356,189
1920-1921 ..	650,493(c)	673,992	1,324,485
1921-1922 ..	468,711(d)	499,197	967,908

(a) Year ending 31st March.

(b) Including money and Government loans.

(c) Not including money or Government Stores.

TABLE VI.—TERRITORY OF NEW GUINEA.—IMPORTS, 1913 TO 1921-72.

Commodities.	1913.	1915 (Jan.- June).	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	1921-22.
	£	£	£	£	£	£	£	£	£
Foodstuffs ..	101,679	27,178	56,383	65,467	83,771	67,410	190,442	241,280	118,238
Beverages (non- alcoholic) ..	3,943	(a)	(a)	(a)	(a)	(a)	(a)	2,429	1,360
Alcoholic Liquors ..	15,521	9,521	12,595	12,837	16,079	16,021	31,744	39,841	29,703
Tobacco ..	16,747	4,460	14,635	19,925	20,450	20,618	44,936	53,446	41,392
Live Animals ..	3,465	(a)	(a)	149	246	294	1,429	845	4,276
Copra Sacks ..	(a)	(a)	(a)	(a)	(a)	(a)	(a)	20,555	23,152
Apparel ..	57,386	9,489	36,464	48,710	52,263	74,806	76,935	125,177	37,842
Oils ..	13,681	4,102	9,386	9,838	16,199	14,033	23,835	39,048	26,506
Hardware and Machinery ..	95,251	3,895	20,705	25,684	34,949	48,942	64,912	69,386	27,949
Motor Cars and Accessories ..	(a)	(a)	(a)	(a)	(a)	(a)	(a)	20,141	11,953
Firearms, Am- munition, and Explosives ..	3,892	(a)	(a)	(a)	(a)	(a)	(a)	3,678	1,704
Timber and Build- ing Materials ..	14,285	(a)	(a)	(a)	(a)	(a)	(a)	21,471	7,200
Paper and Station- ery ..	4,105	(a)	(a)	1,344	1,748	1,634	1,225	4,366	4,459
Medicines and Drugs ..	11,162	795	2,700	3,293	5,587	3,435	5,414	10,300	10,290
Miscellaneous ..	9,320	14,310	22,134	18,126	26,748	24,668	65,895	9,478	17,687
Coal ..	14,050	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(a)
Money ..	51,585	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Government Stores ..	(c)	(b)	(b)	(b)	(b)	(a)	(b)	(b)	110,000
Total ..	416,072e	78,759f	175,002f	205,373f	258,040f	271,861f	506,767f	661,441f	468,711g

(a) Not separately recorded. (b) Not recorded. (c) Included in other items. (d) Not separately recorded, included in Government Stores. (e) Including money and Government Stores. (f) Not including money or Government Stores. (g) Not including money.

TABLE VII.—TERRITORY OF NEW GUINEA.—VALUE OF EXPORTS,
1913 TO 1921-22.

Commodity.	1913.	1915 (Jan.- June).	1915-16	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	1921-22. (a)
	£	£	£	£	£	£	£	£	£
Copra	302,186	72,976	161,119	267,277	369,837	244,314	745,057	644,045	474,110
Cocoa	7,412	1,008	9,005	8,664	11,159	8,464	15,530	9,105	9,465
Stone and Ivory									
Nuts	2,288	..	109	93	180	333	271	531	..
Rubber	6,197	..	1,720	5,304	1,673	1,196	1,104	2,900	..
Sisal Hemp ..	299	..	..	..	..	..	..	..	..
Other Agricultural									
Products	818	75	2,580	545	1,222	633	2	20	..
Timber	173	..	..	..	..	..	..	..	..
Birds of Paradise									
and other									
Feathers	61,579	..	98	125	..	100	34,133	5,812	2,027
Mother of Pearl									
and other									
Marine Products	10,862	145	5,783	16,495	20,433	14,576	53,285	14,579	13,595
Miscellaneous ..	1,590	..	..	..	..	..	40	..	..
Total	393,404	74,204	180,414	298,503	404,504	269,666	849,422	673,992	499,197

(a) Subject to revision.

TABLE VIII.—TERRITORY OF NEW GUINEA.—QUANTITIES OF EXPORTS FROM
NEW GUINEA, 1913 TO 1921-22.

Commodity.	1913.	1915 (Jan.- June).	1915-16.	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	1921-22
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Copra	14,000	9,451	11,062	18,582	19,708	14,886	22,708	23,735	25,894(b)
Cocoa	138	13	186	(a)	144	112	140	133	152
Rubber	19	..	(a)	(a)	(a)	(a)	(a)	29	..

(a) Not recorded.

(b) Subject to revision.

TABLE IX.—TERRITORY OF NEW GUINEA.—IMPORTS FROM VARIOUS
COUNTRIES, 1913 TO 1921-22.

Year.	Australia. (a)	Germany.	United States.	Japan.	Other Countries.	Total.
	£	£	£	£	£	£
1913	120,655	180,352	16,353	2,000	96,712	416,072
1915—Jan. to June ..	74,774	..	..	3,785	..	78,559
1915-1916	168,139	..	..	6,863	..	175,002
1916-1917	192,892	..	..	2,481	..	195,373
1917-1918	244,701	..	..	13,339	..	258,040
1918-1919	231,175	..	..	40,686	..	271,861
1919-1920	506,767	..	..	..	..	506,767
1920-1921	661,441	..	..	..	..	661,441
1921-1922	468,711	..	..	..	..	468,711

(a) According to the statistics collected in Australia, about 40 per cent. of the exports from Australia to New Guinea during the five years ended 30th June, 1921, were of Australian origin.

TABLE X.—TERRITORY OF NEW GUINEA.—EXPORTS TO VARIOUS COUNTRIES, 1913 TO 1921-22.

Year.	Australia.	Germany.	United States.	Japan.	Other Countries.	Total.
	£	£	£	£	£	£
1913	16,035	367,847	482	4,800	4,240	393,404
1915—Jan. to June ..	74,204	..	..	..	..	74,204
1915-1916	178,876	..	..	1,538	..	180,414
1916-1917	294,783	..	..	3,700	..	298,483
1917-1918	348,404	..	43,800	12,300	..	404,504
1918-1919	265,266	..	..	4,400	..	269,666
1919-1920	660,422	..	..	..	189,000(a)	849,422
1920-1921	673,992	..	..	..	..	673,992
1921-1922	499,197	..	..	..	..	499,197

(a) Inclusive of 5,113 tons Copra to the United Kingdom.

TABLE XI.—TERRITORY OF NEW GUINEA.—AREA OF EUROPEAN PLANTATIONS, 1885 TO 1918.

Year.	Total Area.	Area in Coconuts (Including Area not in Bearing).
	Acres.	Acres.
1885	148	(a)
1890	678	(a)
1895	2,152	(a)
1898	6,763	(a)
1903	21,469	18,940
1906	27,434	26,090
1910	50,710	43,918
1911	58,837	51,510
1912	63,300	56,133
1913	72,473	64,822
1914	84,941	76,845(b)
1918 (December) ..	..	133,960(c)

(a) Not recorded. (b) Of which 23,522 acres were in bearing. (c) Of which 44,169 acres were in bearing.

TABLE XII.—TERRITORY OF NEW GUINEA.—AREA PLANTED OR UNDER CROP, 1st JANUARY, 1914.

Crop.	Bismarck Archipelago.	Mainland.	Total.
	acres.	acres.	acres.
Cereals—			
Maize	304	20	324
Rice	10	99	109
Tuberous plants—			
Arrowroot	35	..	35
Taro	99	62	161
Palms—			
Coconut	63,037(a)	13,808(a)	76,845
Oil palm	2	2	4
Indiarubber—			
Ficus	1,945	1,819	3,764
Hevea	902	361	1,263
Kastilloa	413	124	537
Fibre-yielding plants—			
Cotton .. ..	..	45	45
Sisal hemp	7	153	160
Cocoa	949	..	949
Coffee	152	..	152
Lemon and citronella grass ..	297	..	297
Other crops	234	62	296
Total	68,386	16,555	84,941

(a) Of which 20,144 in Bismarck Archipelago and 3,378 on the mainland were in bearing.

TABLE XIII.—TERRITORY OF NEW GUINEA.—EUROPEAN COCONUT PLANTATIONS, DECEMBER, 1918.

Island.	Not Bearing.			Bearing.			Total.		
	Acres.			Acres.			Acres.		
New Britain	23,320			19,528			42,848		
New Ireland	26,268			8,528			34,796		
Admiralty Islands	7,658			5,350			13,008		
Solomon Islands	10,258			3,114			13,372		
Mainland	22,285			7,651			29,936		
	89,789			44,171			133,960		

TABLE XIV.—TERRITORY OF NEW GUINEA.—NATIVE LABOURERS EMPLOYED ON PLANTATIONS, 1890 TO 1922.

Year.				Year.			
Number.				Number.			
1890	869			1911	10,984		
1895	2,446			1912	13,622		
1898	2,348			1913	14,990		
1908	8,275			1914	17,529		
1909	8,311			1921 (May)	30,849(a)		
1910	9,460			1922 (June)	26,619(a)		

(a) Total number indentured.

TABLE XV.—TERRITORY OF NEW GUINEA.—DISTRIBUTION OF INDENTURED NATIVE LABOURERS, MAY, 1921.

Island and District.				Island and District.			
Number.				Number.			
New Britain—				Admiralty Island—			
Rabaul	8,260			Manus	3,377		
Talasea	926			Solomon Islands—			
Gasmatta	338			Kieta	3,129		
Kokopo	3,421			Mainland—			
New Ireland and adjoining islands—				Morobe	921		
Kaewiang	3,846			Eitape	1,215		
Namatanai	1,867			Madang	3,549		
				Total	30,849		

TABLE XVI.—PROTECTORATE OF GERMAN NEW GUINEA.(a)—REVENUE AND EXPENDITURE, 1899 TO 1914.

Year.	Revenue.					Expenditure.(b)
	Customs.	Taxes.	Other Revenue derived from Protectorate.	Total Revenue from Protectorate.	Subsidy from Imperial German Government.	
	£	£	£	£	£	£
1899 ..	2,366	567	1,088	4,021	32,159	34,606
1900 ..	2,077	569	1,797	4,443	41,559	51,150
1901 ..	2,450	600	1,850	4,900	34,450	41,850
1902 ..	1,850	750	1,400	4,000	43,000	53,000
1903 ..	2,350	1,000	3,200	6,550	46,550	50,550
1904 ..	2,350	1,450	3,200	7,000	44,450	52,600
1905 ..	6,300	2,100	3,900	12,300	41,750	65,950
1906 ..	10,200	2,750	2,900	15,850	56,750	75,650
1907 ..	10,350	5,200	5,050	20,600	56,500	75,600
1908 ..	20,550	5,800	5,800	32,150	55,850	90,650
1909 ..	27,650	4,850	3,900	36,400	52,150	88,550
1910 ..	39,650	10,950	11,600	62,200	45,200	112,700
1911 ..	39,450	12,450	17,750	69,550	37,150	106,850
1912 ..	42,600	14,850	18,750	76,200	59,150	135,300
1913 ..	46,750	17,900	21,250	85,900	69,450	167,100
1914 ..	56,300(c)	19,500(c)	26,800(c)	102,600(c)	84,050(d)	187,650(c)

(a) From 1899 to 1909 these figures are for the old Protectorate (i.e., the present Territory of New Guinea) only. From 1910 they include Nauru and the islands north of the Equator. For the five years 1905-1909 the revenue, subsidy, and expenditure of Nauru and the islands north of the Equator were:—

Year.	Total Revenue derived from Islands.	Subsidy.	Expenditure.
	£	£	£
1905	3,750	7,900	22,150
1906	7,300	24,850	28,600
1907	8,550	16,650	21,150
1908	20,150	21,000	36,650
1909	17,700	Nil	23,250

(b) Including expenditure on public works. (c) Estimated. (d) This was the amount approved by the German Government. The expenditure on public works for 1914 was estimated at about £25,000.

TABLE XVII.—TERRITORY OF NEW GUINEA.—REVENUE AND EXPENDITURE, 1914 TO 1921-22.

Year.	Revenue.	Expenditure.
September, 1914, to 31st August, 1915	£39,607	(a)
1st September, 1915, to 30th June, 1916	77,287	(a)
1st July, 1916, to 30th June, 1917	115,559	(a)
1st July, 1917, to 30th June, 1918	139,921	(a)
1st July, 1918, to 30th June, 1919	143,636	167,134(a)
1st July, 1919, to 30th June, 1920	202,160	160,407(a)
1st July, 1920, to 30th June, 1921	193,957	215,315(a)
1st July, 1921, to 30th June, 1922	216,556(b)	235,697(b)

(a) The revenue during these years was applied in maintaining the Government of the country and (to the amount of £220,225) in part payment of stores, transport, etc., for the use of the Expeditionary Force which carried on the Government. The pay and allowances of the Force (£661,541) and the balance of the cost of stores, etc. (£254,535), making a total expenditure on military account of £916,076, were defrayed from Commonwealth funds.

(b) Subject to revision.

TABLE XVIII.—TERRITORY OF NEW GUINEA.—DETAILS OF REVENUE,
SEPTEMBER, 1914, TO 30th JUNE, 1922.

Heading.	1914 to 31.8.15.	1915 to 30.6.16.	1916 to 30.6.17.	1917 to 30.6.18.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Trade and Customs—				
Imports .. ..	..	29,263 12 1	39,580 16 4	41,596 10 0
Exports .. ..	..	5,326 17 5	12,188 4 6	24,085 4 6
Total	27,973 6 4	34,590 9 6	51,769 0 10	65,681 14 6
Taxes and Fees—				
Licences	685 0 1	3,232 7 0	2,795 11 1	4,307 9 11
Business Tax ..	1,361 17 3	536 3 6	7,097 5 5	4,263 13 5
Law Department ..	976 8 9	1,230 3 8	888 7 4	1,151 10 9
Lands Department ..	340 2 11	3,646 1 5	2,656 15 11	5,897 4 1
Native Affairs—				
Head Tax	2,837 5 6	7,014 19 5	12,410 15 8	10,685 17 5
Indenture Fees ..	..	3,282 0 2	2,779 8 9	2,508 15 10
Fees and Fines ..	812 8 10	154 9 6	223 19 8	255 14 8
Total	7,013 3 4	19,096 4 8	28,852 3 10	29,070 6 1
Miscellaneous—				
Trade and Customs ..	..	942 2 7	2,309 1 9	2,715 0 7
Post Office	1,597 3 1	4,020 10 11	3,923 19 9	1,910 13 4
Wireless Service ..	..	1,016 2 3	1,636 3 1	1,724 4 11
Receipts from Administration Ship- ping Services	1,634 3 1	10,597 8 9	10,995 13 3	19,632 18 1
Plantations .. ..	..	196 7 7	1,450 8 2	3,511 2 10
Hospital Receipts ..	270 16 6	1,057 7 4	2,545 15 9	1,947 13 0
Interest .. ..	..	253 14 0	794 8 3	858 2 5
Miscellaneous	1,118 0 11	5,516 3 7	11,282 10 9	13,368 18 8
Total	4,620 3 7	23,599 17 0	34,938 0 9	45,168 13 10
GRAND TOTAL	39,606 13 3	77,286 11 2	115,559 5 5	139,920 14 5

Heading.	1918 to 30.6.19.	1919 to 30.6.20.	1920 to 30.6.21.	1921 to 30.6.22.(a)
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Trade and Customs—				
Imports	35,160 14 7	98,657 16 11	59,865 1 8	88,512 0 0
Exports	18,596 13 11		33,034 15 10	
Total	53,757 8 6	98,657 16 1	92,899 17 6	88,512 0 0
Taxes and Fees—				
Licences	6,837 18 11	7,587 3 11	7,976 18 3	6,000 0 0
Business Tax ..	6,019 9 4	8,134 3 8	8,860 6 3	7,600 0 0
Law Department ..	1,157 1 5	2,281 12 7	1,415 15 7	2,500 0 0
Lands Department ..	3,738 3 9	11,381 17 6	4,437 16 6	9,300 0 0
Stamp Duties .. ..	..	..	..	1,500 0 0
Native Affairs—				
Head Tax	20,970 2 4	11,210 12 6	15,522 2 4	20,049 0 0
Indenture Fees ..	3,786 16 0	3,855 16 7	2,580 2 9	150 0 0
Fees and Fines ..	818 12 7		239 19 3	
Income Tax .. ..	..	..	..
Total	42,828 4 4	44,451 6 9	41,033 0 11	47,099 0 0
Miscellaneous—				
Trade and Customs ..	2,002 7 10	2,437 11 9	4,284 5 8	..
Post Office	3,084 7 9	4,061 7 1	3,852 11 9	5,750 0 0
Wireless Service ..	3,136 16 0	4,780 17 8	4,180 14 0	9,000 0 0
Receipts from Administration Ship- ping Services	20,699 18 2	28,060 10 1	23,920 17 11	34,450 0 0
Plantations	1,934 7 9	5,636 15 2	4,036 1 8	4,000 0 0
Hospital Receipts ..	3,049 11 11	3,027 6 9	4,844 15 5	5,787 0 0
Interest	217 19 5	81 8 3	163 14 1	..
Miscellaneous	12,925 3 11	10,964 16 10	14,741 10 11	24,978 0 0
Total	47,050 12 9	59,050 13 7	60,024 11 5	80,945 0 0
GRAND TOTAL	143,636 5 7	202,159 17 3	193,957 9 10	216,556 0 0

(a) Subject to revision.
£12,630, printing £3,020.

(b) Receipt of Health Department.

(c) Including sale of stores

TABLE XIX.—TERRITORY OF NEW GUINEA.—EXPENDITURE, 1921-1922.

Administration and Govern- ment Secretary	£16,597	Trade and Customs	4,541
Government Printer	2,182	Agriculture	6,061
Justice	3,726	Public Health	23,030
Treasury	20,576	District Services	47,175
Audit	2,421	Administration Shipping Service	37,326
Lands and Surveys	9,649	Wireless Service	15,686
Native Affairs	13,177		
Public Works and Wharves ..	33,550		£235,697

§ 12. Bibliography.

The following authorities have been consulted in the preparation of the information relating to the Territory of New Guinea in the preceding pages:—

Foreign Office Handbook: "Former German Possessions in the Pacific." (1919.)
Hans Blum: *Neu Pommern und der Bismarck-Archipel: Eine wirtschaftliche Studie.* (Berlin, 1900.)

R. Parkinson: "Dreissig Jahre in der Südsee." (Stuttgart, 1907.)

H. Schnee (editor): "Deutsches Kolonial Lexikon." (Leipzig, 1920.)

Nachrichten über Kaiser Wilhelmsland und der Bismarck-Archipel, 1885-1898.

Die deutschen Schutzgebiete in Afrika und der Südsee. Amtliche Jahresberichte herausgegeben vom Reichs-Kolonialamt.

Amtsblatt für das Schutzgebiet Neuguinea, 1909 to 1st September, 1914.

Government Gazette, British Administration, German New Guinea, continued as Rabaul Gazette, 15th October, 1914, to 7th May, 1921.

New Guinea Gazette, from 9th May, 1921.

British Administration (late) German New Guinea. Statistics relating to Commerce, Native Tax, Population, Live Stock, and Agriculture, etc., in connexion with the late German New Guinea Possessions. (Government Printer, Melbourne, 1915.)

Report of the Royal Commission on late German New Guinea. (P.P. No. 29 of 1920.) (Map.)

Report to the League of Nations on the Administration of the Territory of New Guinea from September, 1914, to 30th June, 1921 (P.P. No. 3 of 1922.)

Report of the Minister for Defence on the Military Occupation of the German New Guinea Possessions. (P.P. No. 6 of 1922.) (Map.)

Census of Commonwealth, 4th April, 1921. Census Bulletin No. 8, Territory of New Guinea.

Evan R. Stanley: Report on the Salient Geological Features and Natural Resources of the New Guinea Territory, including notes on Dialectics and Ethnology.

Reference has also been made to the maps in the list hereunder.

Eastern New Guinea and adjacent islands, showing district boundaries. Scale, 24 miles to 1 inch. (Published with Report of Royal Commission, 1920, and Report of Minister for Defence, 1922.)

Territory of New Guinea, showing districts and plantations, prepared by Plantation Section, Expropriation Board, Rabaul. Scale, 24 miles to 1 inch.

Maps showing rainfall, and distribution of various features of native culture in *Deutsches Kolonial Lexikon*, article *Deutsch-Neu-Guinea*.

Maps showing distribution of coconut palms, rubber, and sources of other products. routes of discoverers and explorers, atmospheric temperature and pressure, rainfall, vegetation, and distribution of animals; geological map, and ethnological map, in Meyer's *Deutsche Kolonialreich*, vol. 2.

Admiralty Chart No. 2766.—North-east coast of New Guinea, with Bougainville, New Britain, New Ireland, Admiralty Islands, and outlying reefs.

F. NAURU (PLEASANT ISLAND).*

1. **Description.**—Nauru is a circular atoll having an area of nearly 5,000 acres, of which about two-thirds is phosphate bearing. The climate is healthy and equable; the lowest temperature recorded in the five years, 1916 to 1920, was 68 degrees, the highest 99.5 degrees. The rainfall is irregular: in 1916, 18.33 inches fell, in 1919, 167.64 inches. Malaria is unknown: but tuberculosis and leprosy are prevalent among the natives, and in 1921 an epidemic of influenza carried off 230 Nauruans.

2. **History.**—Nauru, which is situated in longitude 166° east and is only 26 miles south of the equator, was, prior to 1914, part of the protectorate of German New Guinea (see § 1 of the article on the Territory of New Guinea).

In November, 1914, Nauru was occupied by a detachment from the Australian Expedition at Rabaul: and it was included in the cession of colonies made by Germany in 1919 to the Allied and Associated Powers, whose representatives agreed that a mandate over it should be given to His Majesty the King. On 2nd July, 1919, the British, Commonwealth, and New Zealand Governments agreed that the administration of the island (which, since 1915, had been in charge of an official appointed by the British Colonial Office) should be vested in an Administrator; the first Administrator was to be appointed for a term of five years by the Australian Government, and thereafter the Administrator was to be appointed in such manner as the three Governments decided. This Agreement was approved by the Commonwealth Parliament in the Nauru Island Agreement Act 1919, and is printed in the Schedule to that Act.

The first Administrator appointed by the Commonwealth Government assumed duty in June, 1921.

The Mandate for Nauru, which was issued by the Council of the League of Nations in December, 1920, is in terms similar to that for the Territory of New Guinea (see paragraph 6 of the section devoted to that Territory).

3. **Administration.**—The Administrator has all the powers of government,—administrative, legislative, and judicial,—in the island. All expenses of administration are met from local revenue.

The revenue and expenditure during the years 1915 to 1921 were as follows:—

NAURU.—REVENUE AND EXPENDITURE, 1915-21.

Heading.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
	£	£	£	£	£	£	£
Revenue ..	9,651	8,403	9,474	8,556	6,761	10,611	10,192
Expenditure ..	4,775	5,872	16,551	5,042	4,727	4,818	12,712

4. **Population.**—Figures for population for the five years 1916-20 and as at the 24th April, 1921, are given hereunder.

NAURU.—POPULATION, 1916-21.

Population.	1916.	1917.	1918.	1919.	1920.	24th April, 1921.
Europeans	90	86	88	88	91	119
Chinese	278	195	136	134	599	597
Nauruans	1,284	1,269	1,273	1,279	1,068	1,084
Other South Sea Islands ..	449	384	241	275	227	266(a)

(a) Including 127 natives of New Guinea employed by the British Phosphate Commission.

* See *Report on Administration of Nauru to 17th December, 1920* (P.P. No. 5 of 1922), *ditto*, 17th December, 1920 to 31st December, 1921 (P.P. No. 4 of 1922), *Report and Accounts of British Phosphate Commission for year ended 30th June, 1921* (P.P. No. 23 of 1922), and *Nauru and Ocean Islands: Their Phosphate Deposits and Working*, by H. B. Pope (P.P. No. 148 of 1921.)

5. **Imports and Exports.**—Information regarding imports and exports for years 1916-21 is appended herewith.

NAURU.—IMPORTS AND EXPORTS, 1916-21.

Heading.			1916.	1917.	1918.	1919.	1920.	1921.
			£	£	£	£	£	£
Imports			34,548	49,108	55,840	45,977	109,119	106,486
Exports—			tons.	tons.	tons.	tons.	tons.	tons.
Phosphate			105,012	101,267	76,440	69,336	149,609	187,680
Copra			277	34	10	124	189	..

6. **Phosphate Deposits.**—These were discovered in 1900, and were worked by the Pacific Phosphate Company, which also worked the deposits on Ocean Island (about 165 miles east of Nauru and part of the Gilbert and Ellice Islands Colony administered by the Colonial office). The quantity on the two islands has been estimated at not less than 100,000,000 tons, and the rock phosphate, as shipped, averages 85 per cent. to 88 per cent. of tribasic phosphate of lime. About 3,750,000 tons have already been removed; the area so far worked is only about 50 acres.

The interests of the Pacific Phosphate Company in the two islands (though not in other islands in the Pacific in which it has workings) were bought by the British, Commonwealth, and New Zealand Governments in 1919 for £3,500,000, the purchase money being contributed in the proportions of 42, 42, and 16 per cent. respectively. The Agreement of 2nd July, 1919, provides for the working of the deposits by the British Phosphate Commission, of three members, one appointed by each Government; and the three countries are to receive the output in the same proportions of 42, 42, and 16 per cent.

The output from the two islands in 1913, the last year before the war, was 350,000 tons; in 1920-21 it amounted to 364,251 tons. The output in 1920-21 was distributed approximately as follows:—To Australia, 265,750 tons (72.96 per cent.); to New Zealand, 17,100 tons (4.70 per cent.); to the United Kingdom, 16,700 tons (4.59 per cent.); to other countries, 64,700 tons (17.75 per cent.).*

The trading account of the Commission for 1920-21 shows receipts for sales and other credits as £1,304,740; the f.o.b. cost of phosphate at the islands was £688,958, and freights amounted to £613,097, leaving a balance of £2,685. The f.o.b. cost included a charge of £222,521 (equal to 12s. 3d. per ton) for interest at 6 per cent. upon the purchase price paid to the Pacific Phosphate Company and contribution to a sinking fund for the redemption of the capital sum in 50 years; the f.o.b. cost amounted in all to 37s. 10d. per ton.

Up to 30th June, 1922, the Commission's charges for phosphate landed in Australia was from 75s. to 80s. per ton; the price was reduced from 1st July, 1922, to 49s. 3d. in the Eastern States and 52s. 3d. in Western Australia.

The employees of the Commission at Nauru consist of 60 Europeans, about 580 Chinese, and about 260 natives of New Guinea and islands in the Pacific south of the Equator. Only a very few Nauruans are employed.

*Although of greater extent than those in other Pacific islands and of higher quality than any large deposits elsewhere, the deposits in Nauru and Ocean Islands are not comparable, in extent or output, with the deposits of Northern Africa and the United States. Of the world's output of 6,500,000 tons of phosphate rock in 1920, Tunis, Algeria and Egypt produced nearly 2,000,000 tons, and Florida and other fields in the United States over 4,000,000 tons; the price of the United States product varied from about \$14 for 78 per cent. phosphate to \$4 for lower grades (*Mineral Industry*, 1920).

G. ASIATIC POPULATION OF THE SOUTH PACIFIC.

In the following table is given the number of Asiatics in the South Pacific at various dates:—

NUMBER OF ASIATICS IN THE SOUTH PACIFIC.

Group.	Chinese and Tonkingese.	Japanese.	British Indians.	Malays and Javanese.	Other Asiatics.	Total.
Papua (1921) ..	3	10	14	74	183	284
Territory of New Guinea (1921) ..	1,424	87	1	221	45	1,778
Norfolk Island (1921)	none	none	none	none	none	none
British Solomon Islands (1921) ..	(a)	8	(a)	(a)	80	88
Gilbert and Ellice Island (1921) ..	(b)	3	(b)	(b)	(b)	26(d)
Nauru (1921) ..	514	none	none	none	none	514
Ocean Island (1921) ..	375	none	none	none	none	375
Fiji (1921) ..	910	100(c)	60,634	(a)	(a)	..
New Caledonia (1921)	(a)	1,745	(b)	1,200(d)	(b)	(e)
Tahiti and Other French Establish- ments (1921) ..	2,400	6	(b)	(b)	(b)	..
New Hebrides (1920)	224	51(f)	none	72	none	347
Western Samoa (1921)	1,500	none	(b)	(b)	(b)	..
Tonga ..	(b)	(b)	(b)	(b)	(b)	..
Cook Islands (1920) ..	(b)	none	(b)	(b)	(b)	..
Total separately enumerated ..	7,350	2,010	60,649	1,567	308	..

(a) Not separately enumerated.

(b) Information not available (but in most of the cases to which this remark applies there is no reason to suppose there are any of the race in question).

(c) Not separately enumerated, but unofficially estimated not to exceed 100.

(d) In 1911.

(e) The total number of "colored immigrants" in 1921 was 3,611.

(f) In 1921.

SECTION XXX.

PUBLIC HYGIENE.

§ 1. Introduction.

1. **General.**—Though the safeguarding of the public health as an organised department of governmental activity is of comparatively modern growth, few branches of administration have expanded more rapidly than the one relating to that subject. The loss of potential wealth incurred through preventable diseases and deaths is of grave concern to the nation, and is a matter which has received an increased amount of attention during the last few years both from the Commonwealth and State Governments, and from the Health and other authorities in Australia. Numerous Acts of Parliament have been passed dealing with various aspects of the subject of public hygiene.

§ 2. The Public Health Acts.

1. **General.**—The most important statutes relating generally to the subject of public hygiene are the Commonwealth Quarantine Act and the Health Acts which have been passed in each State. The general trend of public health legislation has been referred to in previous issues of the Official Year-Book (see No. 12, pp. 1050–1).

2. **Commonwealth.**—The Commonwealth Department of Health, which was created on the 3rd March, 1921, and commenced its administration as from the 7th March, 1921, is controlled by the Commonwealth Minister of Health. The Department of Health was formed by the extension and development of the Commonwealth Quarantine Service, the Director of Quarantine becoming the Commonwealth Director-General of Health and Permanent Head of the Department.

The functions of the Department of Health are defined by an Order-in-Council gazetted on the 3rd March, 1921, as follows :—

The administration of the Quarantine Act.

The investigation of causes of disease and death and the establishment and control of laboratories for this purpose. The control of the Commonwealth Serum Laboratories and the commercial distribution of the products manufactured in those laboratories.

The methods of prevention of disease.

The collection of sanitary data, and the investigation of all factors affecting health in industries.

The education of the public in matters of public health.

The administration of any subsidy made by the Commonwealth with the object of assisting any effort made by any State Government or public authority directed towards the eradication, prevention, or control of any disease.

The conducting of campaigns of prevention of disease in which more than one State is interested.

The administrative control of the Australian Institute of Tropical Medicine.

The administrative control of infectious disease amongst discharged members of the Australian Imperial Forces.

Generally to inspire and co-ordinate public health measures.

Any other functions which may be assigned to it.

As a result of the creation of this Department, the Australian Institute of Tropical Medicine at Townsville, and the campaign in connexion with hookworm disease, are now under the control of the Commonwealth Department of Health. The organisation of the Department in respect of other functions is proceeding.

3. New South Wales.—The Department of Public Health is controlled by the Minister of Public Health. The Director-General of Public Health is the chief executive officer, and is assisted by various staffs—medical, bacteriological, chemical, veterinary, dairy inspection, meat inspection, sanitary, pure food, and clerical. Briefly put, the work of the Department extends over the whole of the State, and embraces all matters relating to public health and the general medical work of the Government, the Director-General of Public Health holding the position of Chief Medical Officer of the Government as well as being permanent head of the Department.

The Board of Health has certain statutory duties imposed upon it by various Acts of Parliament, and the Director-General is President of the Board. These duties consist largely in supervision of the work of local authorities (Municipal and Shire Councils), so far as that work touches upon public health matters connected with the following Acts:—Public Health Act 1902, Public Health (Amendment) Acts 1915 and 1921, Dairies Supervision Act 1901, Noxious Trades Act 1902, Cattle Slaughtering and Diseased Animals and Meat Act 1902, Pure Food Act 1908, and Private Hospitals Act 1908. The Board further possesses certain powers connected with public health matters under the Local Government Act 1919. The Board of Health is a nominee Board, created in 1881 and incorporated in 1894.

The Director-General of Public Health acts independently of the Board of Health as regards the State hospitals and asylums, and the various public hospitals throughout the State which receive subsidies from the Government.

4. Victoria.—In this State the Public Health Acts are administered by a Commission composed of the Chief Health Officer and six members appointed by the Governor-in-Council. The medical and sanitary staffs of the Commission consist of (a) the chief health officer, who is also chairman, (b) six district health officers and three assistant health officers, (c) chief sanitary engineer and assistant sanitary engineer, three building surveyors and four building inspectors, and (d) ten health inspectors. The main function of the Commission is to enforce the execution of the Health Acts by the local municipalities, but it has been found advisable to supplement this supervisory function by an active policy of inspection as to the sanitary condition of various districts, and the sampling of articles of food. The supervision of the sanitary condition of milk production is under the Dairy Supervision Branch of the Department of Agriculture, but distribution is supervised by the Commission. Acts administered by the Department of Public Health are:—The Health Acts, in which are now included the Adulteration of Wine Act, the Pure Food Act, the Meat Supervision Act, and the Cemeteries Act, in which is now included the Cremation Act. The Department administers also the Midwives Act, the Goods Act, and the Venereal Diseases Act. Under the last-mentioned Act it has been made compulsory for all persons affected with venereal disease to place themselves under the care of a duly qualified medical practitioner. Persons other than medical practitioners are prohibited from treating these diseases, or from supplying drugs or medicines. Registered pharmaceutical chemists may, however, dispense prescriptions to patients of medical practitioners. The Act contains various sections—with appended penalties for contravention—designed to check the spread of venereal diseases. A special clinic for the treatment of infected persons was opened in Melbourne in June, 1918. Between 17th June, 1918, and 31st December, 1921, 9,143 cases were treated, attendances numbering 287,985. It may be mentioned that the Act provides a heavy penalty in the event of the failure of a medical practitioner to notify cases of these diseases.

5. Queensland.—The Public Health Acts 1900 to 1917 are administered by the Commissioner of Public Health under the Home Secretary. The executive staff of the Department includes a health officer, a medical officer for the tuberculosis bureau, two

medical officers for enthetic diseases, fourteen food and sanitary inspectors, one staff nurse, in addition to rat squads in Brisbane. Northern offices, in charge of inspectors, are located at Rockhampton, Townsville, and Cairns, whilst another inspector is stationed at Toowoomba. A laboratory of micro-biology and pathology, in charge of a medical director, is controlled by the Department, and performs a wide range of micro-biological work for the assistance of medical practitioners and the Department.

One function of the Department is to stimulate and advise local sanitary authorities on matters pertaining to the Health Acts, and, where necessary, to rectify or compel rectification, at the cost of the local authority, of sanitary evils produced by local inefficiency or apathy. Its powers and responsibilities were widely increased by the Amending Acts of 1911, 1914, and 1917.

Under statutory powers a scheme is in operation for dealing with venereal disease throughout the State. It includes compulsory notification, free treatment, and the free supply of salvarsan and allied remedies at all public hospitals. Compulsory segregation of venereally infective persons of either sex may be effected on occasion.

6. **South Australia.**—The Central Board of Health in South Australia consists of five members, three of whom (including the chairman, who is permanent head of the Department) are appointed by the Governor, while one each is elected by the city and suburban local Boards and the country local Boards. The Health Act 1898 provides that the municipal and district councils are to act as local Boards of Health for their respective districts. There are 183 of these local Boards under the general control and supervision of the Central Board. A chief inspector and two inspectors under the Health and Food and Drugs Acts periodically visit the local districts, and see generally that the Boards are carrying out their duties. There is also a chief inspector of food and drugs (under the Food and Drugs Act 1908), who, in company with an analyst, visits country districts, and takes samples of milk, which are analysed on the spot. There are two nurse inspectors employed in advising and assisting local Boards in connexion with outbreaks of infectious diseases. In the outlying districts there are fifteen inspectors directly responsible to the Board.

7. **Western Australia.**—The legislation in this State is the Health Act 1911, with the amending Acts of 1912 (2), 1915, 1918, and 1919, which have been partly consolidated and reprinted as "The Health Act 1911-19." The central authority is the Department of Public Health, controlled by a Commissioner, who must be a qualified medical practitioner. The local authorities comprise :—(a) Municipal Councils, (b) Road Boards where the boundaries of a Health District are coterminous with those of a Road District, and (c) Local Boards of Health, composed of persons appointed by the Governor for a certain period. These Local Boards are only utilized where neither Municipal Councils nor Road Boards are available. Generally speaking, the Act is administered by the local authorities, but the Commissioner has supervisory powers, also power to compel local authorities to carry out the provisions of the Act. In cases of emergency the Commissioner may exercise all the powers of a local health authority in any part of the State.

All the usual provisions for public health legislation are contained in the Act, and, in addition, provision is made for the registration of midwifery nurses, the medical examination of school children, the control of public buildings (*i.e.*, theatres, halls, etc.), the control of food, and the provision of standards therefor.

The amending Act of 1915 deals exclusively with venereal diseases. The main features are :—(1) that none but qualified medical practitioners shall treat these diseases; (2) that all patients shall promptly place themselves under skilled treatment; and (3) that advertisements of medicines and appliances for the treatment of these diseases, of sexual infirmities, etc., shall no longer be published. For the carrying out of these objects the Act provides *inter alia* :—(a) For the notification (without name and address) of cases to the Commissioner of Public Health; (b) for the notification to the Commissioner of patients who discontinue treatment before receiving a certificate of

cure; (c) for the exercise by the Commissioner, in certain circumstances, of compulsory powers against persons who neglect treatment; (d) for the provision of free treatment at hospitals, and at the hands of salaried or subsidised medical practitioners.

A penalty of £50, or imprisonment with hard labour for six months, is provided for any person who knowingly infects any other with any venereal disease, or does anything likely to lead to that result.

The 1918 amending Act includes important amendments to that part of the principal Act dealing with venereal diseases. The general principles remain unaltered, but details are much improved.

8. *Tasmania*.—Under the Director of Public Health Act 1920, the office of Director of Public Health is established, and the person holding the office of Chief Health Officer under the Public Health Act 1903 at the time of the passing of the first-named Act is the Director of Public Health, and is also the Permanent Head of the Department. This officer is charged with very wide functions and powers, and in the event of the appearance of dangerous infectious disease (small-pox, plague, etc.) in the State, is vested with supreme power, the entire responsibility of dealing with such an outbreak being taken over by him from the local authorities. Local executive is vested in local authorities, who possess all legal requirements for the efficient sanitary regulation of their districts. Controlling and supervisory powers over these bodies are possessed by the Department of Public Health, whereby many of the powers conferred upon them may be converted into positive duties. One function of the Department is to advise local authorities on matters pertaining to the Health Act, and, where necessary, to rectify sanitary evils produced by local inefficiency or apathy. The Department has four full-time inspectors, who assist and instruct the local sanitary inspectors, but full-time district health officers are not provided for. The number of local authorities under the Public Health Act has been reduced to forty-nine since the Local Government Act 1906 came into force. All parts of Tasmania are now furnished with the administrative machinery for local sanitary government.

The Public Health Act 1917 deals with venereal diseases. Medical practitioners are required to report persons suffering from such diseases. Such notification, however, does not disclose the names or addresses of the patients, this information being given to the Department by medical practitioners only if patients fail to consult or attend for a period of six weeks.

Regulations under the Public Health Act 1903, as amended, for checking or preventing the spread of any infectious disease, came into force in February, 1918.

The Places of Public Entertainment Act 1917 is administered by the Director of Public Health under the Minister. This Act provides, *inter alia*, for the licensing and regulation of places of public entertainment, for the appointment of a censor or censors of moving pictures and for the licensing of cinematograph operators. Comprehensive regulations have been framed under the Act. Inspectors under the Public Health Act 1905 are Inspectors of Places of Public Entertainment under this Act.

§ 3. Inspection and Sale of Food and Drugs.

1. *Introduction*.—The importance of securing a pure and wholesome supply of food and drugs is recognised by both the Commonwealth and State Parliaments. Under the Acts referred to later, and the regulations made thereunder, the importation of articles used for food or drink, of medicines, and of other goods enumerated, is prohibited, as also is the export of certain specified articles, unless there is applied to the goods a "trade description" in accordance with the Act. Provision is made for the inspection of all prescribed goods which are imported, or which are entered for export.

2. Commonwealth Jurisdiction.—Under Section 51 (i) of the Commonwealth Constitution Act 1900, the Commonwealth Parliament has power to make laws with respect to trade and commerce with other countries and among the States. By virtue of that power, the Commerce (Trade Descriptions) Act 1905, and the Customs Act 1910, to which reference has already been made in another part of this book (see pp. 457, 458), were passed.

3. State Jurisdiction.—The inspection and sale of food and drugs is also dealt with in each State, either under the Health Acts or under Pure Food Acts. There is, in addition, in the several States, a number of Acts dealing with special matters, such as the adulteration of wine and the supervision of meat. The supply and sale of milk are also subject to special regulations or to the provisions of special Acts. A brief statement of the general objects of these Acts appeared in previous issues of the Year Book (see No. 12, p. 1054).

4. Food and Drug Standardisation.—Conferences with the object of securing uniformity in these matters were held in Sydney in 1910, and in Melbourne in 1913. The resolutions of the latter conference were submitted to the Premiers' Conference held in Melbourne in March, 1914, and in conformity with the determinations arrived at, each State issued regulations which have had the effect of ensuring uniformity throughout the Commonwealth.

5. The Sale and Custody of Poisons.—In Victoria, New South Wales, Western Australia, and Tasmania, the enactments for regulating the sale and use of poisons are administered by the Pharmacy Boards in the respective States. In South Australia, the sale of poisons is provided for by regulations under "The Food and Drugs Act 1908," administered by the Central Board of Health. In Queensland, the sale of poisons is under the control of the Health Department.

In New South Wales and Tasmania the Government subsidises the Pharmacy Board, in order to enable it to carry out the provisions of the Poisons Act. The subsidy to the Victorian Board was withdrawn in March, 1921, provision having been made for the payment of a 10s. licence fee under the Poisons Act 1920.

No persons, other than legally qualified medical practitioners and registered pharmaceutical chemists, are permitted to sell poisons without special licence from the bodies administering the legislation in the respective States. These licences are issued to persons in business distant from four to five miles from a registered chemist, on production of certificates from medical practitioners, police, or special magistrates or justices as to the applicant's character and fitness to deal in poisons. Annual licence fees, ranging from 5s. to 40s., are charged in the several States. By a new regulation, made in New South Wales on 17th December, 1920, provision is made for an annual licence fee of 10s. 6d. Prior to this the Pharmacy Board issued licences free of charge. New poisons regulations were approved in Queensland on 1st April, 1920, amongst which are stringent restrictions on the sale of cyanide of potassium.

The special conditions attaching to the sale of poisons are alluded to on p. 1055 of Official Year Book No. 12.

Partial exemptions from the regulations are made in some States in the case of sales of poisons for agricultural, horticultural and photographic purposes in so far that any person may sell them subject to the restrictions as to the class of container and the manner in which they may be sold. The sale of what are generally known as industrial poisons, such as sulphuric acid, nitric acid, hydrochloric acid, soluble salts of oxalic acid, etc., is governed by regulations, as also is the sale of poisons for the destruction of rats, vermin, etc. Under the existing laws these poisons are allowed, in most of the States, to be sold by anyone. The Victorian Parliament, in December, 1920, passed an amending Poisons Act, in which the word "wholesale" has for the first time been defined as meaning "sale or supply for the purposes of re-sale," providing for an annual fee of 10s. and the issuing of licences to dealers in exempted poisons. A new principle is introduced into the Victorian Poisons Act of 1920. Certain drugs are declared to be "potent drugs" and may only be sold by pharmaceutical chemists. These drugs include acetanilid, adrenalin, oil of tansy, pituitary extract, thyroid gland preparations, and any serum or vaccine for human use.

§ 4. Milk Supply and Dairy Supervision.

1. **General.**—In Official Year Book No. 12 and preceding issues allusion is made in general terms to the legislation in force in the various States to ensure the purity of the milk supply and of dairy produce generally, but limits of space preclude the repetition of this information in the present issue.

2. **Number of Dairy Premises Registered.**—The following table shews so far as the particulars are available the number of dairy premises registered and the number of cattle thereon. Compulsory registration is not in force throughout the whole area of the various States.

DAIRY PREMISES REGISTERED AND CATTLE THEREON, 1921.

Particulars.	N.S.W.	Victoria.	Q'land. (a)	S. Aust.	W. Aust.	Tasmania.
Premises registered ..	20,527	17,118	13,500	1,365	929	(b)
Cattle thereon ..	923,535	165,486	448,634	8,615	11,079	(b)

(a) For year 1920.

(b) Not available.

3. **New South Wales.**—The provisions of the Dairies Supervision Act 1901 extend to the whole of the Eastern and Central Divisions of this State and to all important dairying districts further inland. Other districts are brought under the operation of the Act by proclamation from time to time. Every dairyman, milk vendor, and dairy factory or creamery proprietor is required, under penalty, to apply for registration to the local authority for the district in which he resides, and also to the local authority of every other district in which he trades. Registrations must be applied for before commencing to trade and must be renewed annually. The Chief Dairy Inspector is in charge of all inspectorial work under the Dairies Supervision Act 1901, and has assisting him fourteen qualified dairy inspectors, each in charge of a district. During 1919, samples of milk numbering 3,502, and of food and drugs numbering 822, were taken from the vendors for examination, and 10,717 dairy premises were inspected. Where necessary, warnings and prosecutions followed. A sum of nearly £2,000 was imposed in fines for adulteration, want of cleanliness, etc.

4. **Victoria.**—The inspection and supervision in Victoria of dairies, dairy farms, dairy produce, milk stores, milk shops, milk vessels, dairy cattle and grazing grounds are provided for by the Dairy Supervision Act 1915, administered by the Minister of Agriculture. Under the Health Act, however, the Department of Public Health is empowered to take samples of food (including milk, cream, butter, cheese, and other dairy products) for examination or analysis, and to institute prosecutions in case of adulterated or unwholesome food. By the end of the year 1920, 117 municipal districts, comprising about one-third of the area of the State, had been brought under the operation of the Dairy Supervision Act. The municipal councils have the option of carrying out the administration of the Act themselves or of deciding that the work should devolve upon the Department of Agriculture; up to the present all the municipalities in which the Act has been proclaimed have elected for Departmental administration.

5. **Queensland.**—The control and supervision of the milk supply, of dairies, and of the manufacture, sale, and export of dairy produce in Queensland are provided for by the Dairy Produce Act 1920, administered by the Department of Agriculture and Stock. These Acts and the regulations made thereunder apply only to prescribed districts, which comprise the whole of the coastal district from Rockhampton down to the New South Wales border, and the Darling Downs, Maranoa, Mackay, and Cairns districts.

6. **South Australia.**—The Food and Drugs Act 1908, and the Regulations made thereunder, provide for the licensing of vendors of milk, and the registration of dairies, milk stores and milk shops. The Metropolitan County Board carries out the requirements of the metropolitan area. In the country, the majority of local authorities have not made statutory provision for the licensing of vendors of milk and the registration of dairy premises; and, in consequence, the Central Board of Health provides for such under the Act.

7. **Western Australia.**—Control of dairies throughout the State is in the hands of the Public Health authorities under the provisions of the Health Act. The inspectors under the Act supervise the sanitary condition of the premises, the examination of herds being carried out by officers of the Department of Agriculture for the Health Department. Inspection of herds is made at regular intervals, and the tuberculin test is applied in cases of suspected disease.

8. **Tasmania.**—Local authorities are responsible for the dairies in their respective districts. By-laws for the registration and regulation of dairies have been drafted by the Public Health Department, and in the majority of cases have been adopted by the local authorities. By the Food and Drug Act, which came into force in March, 1911, milk sampling is carried out by the local authorities. During 1913, attention was drawn by circular to the requirements of local authorities with regard to dairies, and a special report is now required before licences are granted. An Act also provides for the registration and inspection of dairies and other premises where dairy produce is prepared, and regulates the manufacture, sale, and export of dairy produce.

§ 5. Prevention of Infectious and Contagious Diseases.

1. **General.**—The provisions of the various Acts in regard to the compulsory notification of infectious diseases and the precautions to be taken against the spread thereof may be conveniently dealt with under the headings—(a) Quarantine; (b) Notifiable Diseases; and (c) Vaccination.

2. **Quarantine.***—Under the Commonwealth Quarantine Act 1908, the systems of State quarantine formerly in operation were abolished, and a branch of the Department of Trade and Customs, under the immediate control of a Director of Quarantine, was created on 1st July, 1909. Amending Quarantine Acts were passed in 1912, 1915, and 1920, correcting certain imperfections in the original Act, and conferring additional powers. The Quarantine Act is now administered by the Commonwealth Department of Health, which came into being on the 7th March, 1921, the Director of Quarantine becoming the Director-General of Health. Uniformity of procedure has been established throughout the Commonwealth in respect of all vessels, persons, and goods arriving from overseas ports or proceeding from one State to another, and in respect of all animals and plants brought from any place outside Australia. In regard to inter-state movements of animals and plants, the Act becomes operative only if the Governor-General be of opinion that Federal action is necessary for the protection of any State or States; in the meantime the administration of inter-state quarantine of animals and plants is left in the hands of the States.

(i) *Transfer of Quarantine Stations.* The transfer from the States to the Commonwealth of the quarantine stations, for the purposes of human quarantine, at the following places, has been effected:—(a) *New South Wales.* North Head (near Sydney). (b) *Victoria.* Point Nepean (near Melbourne). (c) *Queensland.* Colmslie and Lytton (near Brisbane), and Thursday Island. (d) *South Australia.* Torrens Island (near Adelaide). (e) *Western Australia.* Woodman's Point (near Fremantle), Albany, and Broome. (f) *Tasmania.* Bruni Island (near Hobart). Animal quarantine stations in each of the States have also been transferred to the Commonwealth. New buildings

* From information furnished by the Commonwealth Director-General of Health.

and improvements are in course of construction at several of the transferred stations. New stations have been constructed at Darwin, Thursday Island, Townsville, and Bunbury.

(ii) *Administration of Act.* The administration of the Act in respect of the general division, i.e., vessels, persons, and goods, and human diseases, is under the direct control of the Commonwealth in all States except Tasmania. A medical chief quarantine officer, with assistant quarantine officers, has been appointed in each State. This officer is charged with responsible duties, and is under the control of the Director-General of Health. In Tasmania, the chief health officer of the State acts as chief quarantine officer, and payment is made to the State for his services. The administration of the Act in the Northern Territory has been combined with that of Queensland under the chief quarantine officer for the North-eastern division. The administration of the Acts and Regulations relating to oversea animal and plant inspection and quarantine is carried out by the officers of the State Agricultural Departments acting as quarantine officers.

(iii) *Chief Provisions of Act.* The Act provides for the inspection of all vessels including air-vessels, from oversea, for the quarantine, isolation, or continued surveillance of infected or suspected vessels, persons, and goods, and for the quarantining and, if considered necessary, the destruction of imported goods, animals, and plants. The obligations of masters, owners, and medical officers of vessels are defined, and penalties for breaches of the law are prescribed. Power is given to the Governor-General to take action in regard to various matters by proclamation, and to make regulations to give effect to the provisions of the Act. Quarantinable diseases are defined as small-pox, plague, cholera, yellow fever, typhus fever, leprosy, or any other disease declared by the Governor-General, by proclamation, to be quarantinable. "Vessel" is defined as "any ship, boat or other description of vessel or vehicle used in navigation by sea or air." "Disease" in relation to animals means certain specified diseases, or "any disease declared by the Governor-General, by proclamation, to be a disease affecting animals." "Disease" in relation to plants means "any disease or pest declared by the Governor-General, by proclamation, to be a disease affecting plants." The term "plants" is defined as meaning "trees or plants, and includes cuttings and slips of trees and plants and all live parts of trees or plants and fruit."

(iv) *Proclamations.* The proclamations so far issued specify the diseases to be regarded as diseases affecting animals and plants; appoint first ports of landing for imported animals and plants and first ports of entry for oversea vessels; declare certain places beyond Australia to be places infected, or as places to be regarded as infected with plague; prohibit the importation (a) of certain noxious insects, pests, diseases, germs, or agents, (b) of certain goods likely to act as fomites, and (c) of certain animals and plants from any or from certain parts of the world; fix the quarantine lines, and define mooring grounds, in certain parts of Australia.

(v) *General.* At present, instead of all oversea vessels being examined in every State, as was formerly the case, those arriving from the south and west are now examined only at the first port of call, and pratique is given for the whole of the Commonwealth except in cases of suspicious circumstances, while vessels arriving from the northern routes are examined only at the first and last ports. It is expected that the restrictions placed upon oversea vessels will be further removed as the machinery of quarantine is improved. The present freedom from certain diseases which are endemic in other parts of the world would, however, appear to justify the Commonwealth in adopting precautionary measures not perhaps warranted in the already infected countries of the old world.

3. Notifiable Diseases.—Provision exists in the Health Acts of all the States for precautions against the spread and for the compulsory notification of infectious diseases. When any such disease occurs, the Health Department and the local authorities must at once be notified. In some States notification need only be made to the latter body. The duty of giving this notification is generally imposed, first, on the head of the house to which the patient belongs, failing whom on the nearest relative present, and, on his default, on the person in charge of or in attendance on the patient, and on his default, on the occupier of the building. Any medical practitioner visiting the patient is also bound to give notice.

(i) *Notifiable Diseases Prescribed in each State.* In the following statement those diseases which are notifiable in each State are indicated by a cross :—

DISEASES NOTIFIABLE UNDER THE HEALTH ACTS IN EACH STATE.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.(d)	Tas.(e)
Acute lobar pneumonia	(g)	+	..
Anthrax	+	..	+	+	..
Ankylostomiasis	+	+
Beri-beri	+	..
Bilharziasis	+	+	+	+	+
Bubonic plague	+	+	+	+	+
Cerebro-spinal fever	+	+	+
Cerebro-spinal meningitis	+	+	+	+	+
Chancroid (soft chancre)	+	+(b)	..	+	+
Cholera	+	+	+	+	+
Continued fever	+	+	..	+	..
Diphtheria	+	+	+	+	+
Dysentery	+	..	+	..
Encephalitis lethargica	+	+	..
Enteric fever	+	+	+	+	+
Erysipelas	+	+	+	..
Favus	+
Gleet	+
Gonorrhœa	+	+(b)	+	+	+
Gonorrhœal ophthalmia	+
Hæmaturia	+	..	+	+
Infantile paralysis ..	+	+	+	..	+	+
Infective granuloma of the pudenda	+	+(b)	+	+	..
Influenza	+(h)	+(g)	+	..
Leprosy	+	+(j)	+	+	+
Malarial fever	+	+	+	+	..
Measles	+
Membranous croup	+	+	+	+	..
Ophthalmia neonatorum	+(b)	+	+	..
Pneumonic influenza	+(h)	+(g)	+	..
Polioencephalitis	+	+
Poliomyelitis anterior acuta	+	+	+	+	+
Puerperal fever	+	+	+	+	+
Pulmonary tuberculosis (phthisis)	+(a)	+	+	+	+
Relapsing fever	+	+	+	..
Scarlet fever	+	+	+	+	+
Scarlatina	+	+	+	+	+
Septicæmia	+	..	+	..
Small-pox	+	+	+	+	+(f)
Syphilis	+	+(b)	+(i)	+	+
Trichinosis	+
Tuberculosis	+
Tuberculosis in Animals	+
Typhoid	+	+	+	+	+
Typhus fever	+	+	+	..
Venereal Warts	+	..	+
Whooping cough	+
Yellow fever	+	+	+	..

(a) In metropolitan and certain proclaimed districts. (b) Under the Venereal Diseases Acts. (c) Thursday Island area only. (d) Other diseases enumerated as notifiable under "The Health Act 1911" of this State are pyæmia, and Malta, dengue, low and Colonial fevers. (e) Venereal diseases are notifiable under "The Public Health Act 1917." (f) Chicken-pox has been declared a notifiable disease to render certain its differential diagnosis from small-pox. (g) In South Australia influenza vera is notifiable, and any febrile toxic-septicæmic condition similar to influenza, including pneumonic influenza. (h) Notifiable in certain areas only. (i) Primary and secondary stages only. (j) Notifiable under "The Leprosy Act 1892."

(ii) *Duties of Authorities.* As a rule the local authorities are required to report from time to time to the Central Board of Health in each State as to the health, cleanliness, and general sanitary state of their several districts, and must report the appearance

of certain diseases. Regulations are prescribed for the disinfection and cleansing of premises, and for the disinfection and destruction of bedding, clothing, or other articles which have been exposed to infection. Bacteriological examinations for the detection of plague, diphtheria, tuberculosis, typhoid, and other infectious diseases within the meaning of the Health Acts are continually being carried out. Regulations are provided in most of the States for the treatment and custody of persons suffering from certain dangerous infectious diseases, such as small-pox and leprosy.

(iii) *New South Wales.* The proclamation and notification of infectious diseases are dealt with in Part III. of the Public Health Act 1902. Special provision is made by that Act for the notification of small-pox and leprosy, and for the custody and treatment of lepers. Special reports dealing with outbreaks and the etiology of plague, leprosy, and small-pox have been published.

(iv) *Victoria.* Any infectious disease declared to be notifiable is notifiable throughout the State (Health Act 1919).

(v) *Queensland.* Under Part VII. of the Health Act 1900 1917, all cases of infectious diseases must be notified; special provision is made for notification of small-pox. Provision is made for the diagnosis of leprosy under the Leprosy Act 1892, and lepers are sent to Peel Island, Moreton Bay.

(vi) *South Australia.* In this State cases of infectious diseases must be reported to the local Board, under the provisions of Part VIII. of the Health Act 1898. The onus of notification is placed primarily on the head of the family, and, failing him, the nearest relative, the person in charge, or the occupier of the house; in any case, notification must be given by the medical practitioner attending.

(vii) *Western Australia.* The necessity for providing hospital treatment for infectious cases has been recognised by the Local Health authorities, and in several instances wards for the treatment of these cases have been erected.

(viii) *Tasmania.* Provisions regarding the prevention and notification of infectious diseases are contained in the Public Health Act 1903 and amending Acts.

4. *Vaccination.*—In the State of New South Wales there is no statutory provision for compulsory vaccination, though in all the other States of the Commonwealth such provision has been made. Jennerian vaccine for vaccination against small-pox is prepared at the Commonwealth serum laboratories in Melbourne. A considerable demand exists for the vaccine in the State of Victoria, but in the other States the normal requirements are small. During the years 1912, 1913, and 1914, the output of the vaccine in doses from the depot was respectively 65,000, 570,000, and 146,000. The number of doses issued in 1913 was, however, abnormal, and was due to the epidemic of small-pox which broke out in Sydney at the end of June, this being followed by large numbers of vaccinations in each State.

The following table shews, so far as particulars are available, the number of persons vaccinated in each State from 1916 to 1921 inclusive :—

NUMBER OF PERSONS VACCINATED IN EACH STATE, 1916 TO 1921.

Year.	N.S.W.(a)	Victoria.(b)	Q'land.	S. Aust.	W. Aust.	Tasmania.
1916	2,618	20,916	(c)	531	(c)	(c)
1917	4,663	19,759	(c)	251	(c)	(c)
1918	(c)	15,306	(c)	36	(c)	(c)
1919	324	14,031	(c)	8	(c)	(c)
1920	377	4,327	(c)	20	(c)	(c)
1921	(c)	3,915	(c)	..	(c)	(c)

(a) By officers of the Health Department and at public depots. (b) Children only, who were vaccinated under the Act, see (ii) below. (c) Returns not available.

(i) *New South Wales.* Although there is no provision for compulsory vaccination in this State, public vaccinators have been appointed. No statistics are available as to the proportion of the population who have been vaccinated, but a report of the Principal Medical Officer of the Education Department states that out of 55,740 children medically examined during 1919, 9,487, or 17 per cent., had been vaccinated.

(ii) *Victoria.* Compulsory vaccination, subject to a "conscience" clause, is enforced throughout the State, under Part VII. of the Health Act 1919. From the year 1873 up to 31st December, 1918, it is estimated that 72 per cent. of the children whose births were registered were vaccinated. Free lymph is provided. The number of children vaccinated in Victoria during 1921 was 3,915.

(iii) *Queensland.* Although compulsory vaccination is provided for in this State under Part VII. of the Health Act 1909-1917, its operation has not been proclaimed. Vaccination thus being purely voluntary, medical practitioners do not notify vaccinations. In the early part of 1912, the Queensland Government sent a medical expedition to the islands in Torres Straits. Over 1 200 natives were vaccinated with a view to reducing the risk of the introduction of small-pox from New Guinea. Information as to vaccinations in recent years is not available.

(iv) *South Australia.* The Vaccination Act 1882, which applies to South Australia and the Northern Territory, is administered by the vaccination officer of the State. Under this Act vaccination was compulsory, but in 1917 an Act to abolish compulsory vaccination was passed. The total number of vaccinations in 1920 was 20.

(v) *Western Australia.* In this State vaccination is compulsory under the Vaccination Act 1878, which, however, remains almost a dead letter, seeing that under the Health Act 1911, a "conscientious objection" clause was inserted, which is availed of by the majority of parents. The number of children vaccinated is very small. All district medical officers are public vaccinators, but they receive no fees for vaccinations.

(vi) *Tasmania.* All infants in Tasmania are nominally required under the Vaccination Act 1898 to be vaccinated before the age of 12 months, unless either (a) a statutory declaration of conscientious objection is made, or (b) a medical certificate of unfitness is received. Information in regard to vaccinations in recent years is not available.

5. Commonwealth Serum Laboratories.—The establishment for the preparation of Jennerian Vaccine situated at Royal Park, near Melbourne (formerly known as the "Calf Lymph Depot"), has been enlarged and extended. The institution is now designated the "Commonwealth Serum Laboratories," and forms a branch of the Commonwealth Department of Health. The list of bacteriological preparations produced by the laboratories has been extended so as to cover practically the whole range of biological products, and the institution is now a valuable national provision for the protection of public health and for the treatment of human and animal diseases. Price lists of the various products have been issued, and the institution is in full working order.

6. Malaria and Bilharziasis.—The control of returned sailors and soldiers suffering from malaria and bilharziasis, which was undertaken by the Commonwealth Department of Health at the request of the Departments of Defence and Repatriation, is still being carried out in conjunction with State Health Departments.

(i) *Malaria.* Steps were taken to have all recrudescences in returned sailors, soldiers and nurses in all parts of Australia notified direct to the Commonwealth Department of Health by the Medical Officers of the Repatriation Local Committees. Malaria is also notifiable to each State Health Department, except New South Wales, and particulars of such notifications are passed on to the Commonwealth Department of Health.

Treatment on intensive lines has been regularly carried out in connection with malaria recurrences in returned sailors and soldiers in order to effect a cure as rapidly as possible. Steps were also taken to prevent the settlement of malaria-infected individuals in localities such as irrigation areas, where mosquitoes, capable of carrying malaria, were known to exist.

From information received, it is evident that in the great majority of cases cure has now been established, and that where recrudescences do occur they have been greatly reduced in severity and frequency. The number of foci of infection has thus been very largely reduced and the danger of spread of malaria in the community correspondingly lessened. In the past two years less than ten instances of fresh cases of malaria attributable to infection contracted in Australia have been recorded. None of these have been in the families of returned soldiers.

(ii) *Bilharziasis*. With few exceptions the men who contracted this disease on active service have been brought in from all parts of Australia for expert re-examination and treatment.

The number of men whose medical history pointed to bilharzia infection on active service was 161. Of these 145 have been traced and dealt with, and fourteen were found not to have suffered from bilharziasis.

The great majority were found to be still highly infective. These were treated in hospital with full courses of tartar emetic by intravenous injection. As far as present results indicate, an effective cure has been obtained in these cases.

The men who have not yet been dealt with number sixteen. Of these, five have not been traced, and the remaining eleven either refused to submit to treatment, or failed to attend hospital for the intensive course of treatment. Further action is being taken in these cases.

The men who have suffered from this disease and have undergone treatment as indicated above, are still kept under periodical observation, but owing to the success of the measures already taken it is not anticipated that any extension of the disease to the general community is now likely to take place.

7. *Venereal Diseases*.—The Commonwealth, recognising the importance of effective control of venereal diseases, has provided a subsidy of £15,000 per annum to the various States to assist in the work of providing hospital treatment for, and administrative control of, venereal diseases. The supervision of this work in so far as it relates to the expenditure of this subsidy is controlled by the Commonwealth Department of Health.

§ 6. Tropical Diseases.

1. *Introduction*.—The remarkable development of parasitology in recent years, and the increase in knowledge of the part played by parasites in human and animal diseases, have shewn that the difficulties in the way of tropical colonisation, in so far as these arise from the prevalence of diseases characteristic of tropical countries, are largely removable by preventive and remedial measures. Malaria and other tropical diseases are coming more and more under control, and the improvements in hygiene which science has accomplished lend an entirely new aspect to the question of white settlement in countries formerly regarded as unsuitable for colonisation by European races. In Australia the most important aspect of this matter is at present in relation to such diseases as filariasis, malaria, and dengue fever, which, although practically unknown in the southern States, occur in many of the tropical and sub-tropical parts of the Commonwealth.

2. *Queensland*.—(i) *Transmission of Disease by Mosquitoes*. The existence of filariasis in Queensland was first discovered about thirty-six years ago. The parasite of this disease (and probably of dengue fever also), is transmitted by *Culex fatigans*, the mosquito most prevalent in Queensland. The *Stegomyia fasciata*, conveyor of yellow fever, is another common domestic mosquito throughout Eastern Queensland during the summer, but so far has never been infected from abroad. Occasional limited outbreaks of malaria occur in the northern parts of the State; one at Kidston, in 1910, resulted in 24 deaths. The infection was traced to newcomers from New Guinea. Allusion to the efforts made to deal with the mosquito, under the Health Act of 1911, will be found in Official Year Book No. 12, p. 1063. By an order in Council, the Local Authorities are now responsible for the taking of measures for the destruction, and the prevention of breeding, of mosquitoes.

(ii) *Australian Hookworm Campaign.* In 1916 the Commonwealth of Australia invited the International Health Board of the Rockefeller Foundation to conduct a hookworm survey of the Territory of Papua. Dr. J. H. Waite, of the staff of the Board, made the investigation in 1917, and found that half of all natives examined were infected with hookworm disease.

The work in Papua stimulated interest in the situation in Queensland, where cases of hookworm disease had been reported in the medical literature since 1889. In 1918 a hookworm campaign was undertaken jointly by the State of Queensland and the International Health Board under the direction of Dr. Waite. The prevalence of hookworm disease and its effects in retarding growth and development were found to be greater than had been supposed. The mental retardation in heavily infected school children increased with age as follows :—

Age at last birthday	..	10	..	11	..	12	..	13	..	14	..	15
Mental retardation in years		1.6	..	2.2	..	2.5	..	3.2	..	3.5	..	4.5

In the case of children, growth and development took place in a remarkable way as soon as a cure was effected. It was found that the disease was responsible for anæmia dwarfing, retardation—physical and mental—and delay of sexual maturity.

At the end of 1918 the direction of the work in Queensland was taken over by Dr. S. M. Lambert, and on 1st October, 1919, the Australian Hookworm Campaign was begun. This larger project was supported jointly by the Commonwealth of Australia, the International Health Board of the Rockefeller Foundation, the State of Queensland, and the other States and Territories in which work was being done.

By 31st December, 1921, work had been carried on in all the States, Northern Territory, and the Territories of Papua and New Guinea. The total number of examinations and treatments, including those in Dr. Waite's survey in Papua and the earlier work in Queensland, was as follows :—

People examined for hookworm disease	..	..	210,752
Found to be infected with hookworms	..	..	48,381 (23%)
Treated free by the Australian Hookworm Campaign	..	..	33,144
Found to be cured on re-examination	..	..	7,961*

Endemic hookworm infection has been found in intermittent areas along the eastern coast of Australia from Cape York to Macksville in New South Wales. The higher summer rainfall in these areas appears to be chiefly responsible for the localisation of the infection. It is also found in the vicinity of Broome and Beagle Bay in Western Australia, around Darwin in the Northern Territory, and along the eastern coast of the Gulf of Carpentaria. The surveys of the Northern Territory and the lands bordering on the Gulf of Carpentaria have not been completed. In the Territory of Papua 59.2 per cent. of the natives were found to be infected, and in the Territory of New Guinea, 74.2 per cent. There is no endemic hookworm infection in Victoria, South Australia, Tasmania, the interior of Queensland, all of New South Wales except the north-eastern part, and all of Western Australia except the far north.

Metalliferous mines were examined in Victoria, South Australia, New South Wales, Tasmania, and Western Australia, and were found entirely free from hookworm infection. The examination of metalliferous mines in Queensland has not been completed, but no infection has been found in those already examined. Coal mines in Victoria, Tasmania, and Western Australia were free of infection. Examinations were begun in the coal mines of the Newcastle district at the beginning of the year 1922, and among 1,226 miners examined in about 25 mines only five infected miners were found. In the Ipswich Group of coal mines in Queensland, 31.5 per cent. of the miners were infected, and in the Howard-Torbanlea Group (Queensland) 75.8 per cent. were infected. Recommendations have been made with regard to the correction of the insanitary conditions responsible for these high infection rates.

* Only part of the people treated were re-examined to find out whether they were cured. The total number cured was, therefore, much larger than shown.

Wherever operations are carried on by the Hookworm Campaign, emphasis is placed on the prevention of hookworm disease, in contrast to temporary relief through the curing of existing cases, and much work has been done to improve methods of night-soil disposal and teach the people the danger from soil pollution.

(iii) *Institute of Tropical Medicine, Townsville.* The Australian Institute of Tropical Medicine was founded at Townsville in January, 1910. Since 7th March, 1921, the Institute has been administered by the newly created Commonwealth Department of Health. During the first two years after its establishment the Institute was subsidised by the Commonwealth and Queensland State Governments, and was controlled by a committee consisting of representatives of both Governments and of the three Australian Universities—Sydney, Melbourne, and Adelaide. A director was appointed to organise the activities of the Institute, and after having accomplished a survey of Northern Australia and New Guinea, to advise as to the best centre where the work could be carried out most expeditiously. The staff consisted at first of the director and one laboratory assistant, but soon the necessity arose of appointing an entomologist. In 1913, after two years of preliminary work, the Commonwealth decided to increase considerably the grant to the Institute, and to take over the financial administration, which was vested in the Department of External Affairs, and later in the Home and Territories Department. The representatives of the three universities were retained as scientific advisers. The decision to increase the scope of the Institute was greatly influenced by a resolution passed by the Australasian Medical Congress in Sydney in 1911, recommending an organised inquiry into the various aspects likely to affect the establishment of a working white race in Australia. The increased subsidy made the appointment of a larger staff possible. The services of three qualified assistants were secured, and the Institute was housed in a ferro-concrete building, situated within the precincts of the Townsville Hospital. During the first two years a survey of tropical diseases existent in North Queensland was carried out; the incidence of human and animal parasites was investigated; and a number of problems which required elucidation were attacked. Amongst other suggestions a hookworm survey of Cairns and surrounding districts was recommended. The staff undertook research on "nodules in beef" and made an important discovery, which at first seemed destined to advance our knowledge, by proving that living larvæ could penetrate through the unbroken skin of the beast and could be found under special conditions on the surface. Research in the consequent fate of the larvæ and the search for an intermediary host, in which the larvæ could undergo further development, proved fruitless, although many possibilities, such as biting flies, aquatic insects, etc., were considered and excluded after patient research. It was shewn that the parasites of wild animals, such as reptiles, birds, and small mammals resembled on the whole those found and described from other parts of the tropics, but no new general features of any importance could be discovered. Attention was drawn to the prevalence in the dry western parts of North Queensland of keratosis, a skin disease, characterised by a thickening of the horny layer of the skin, which develops into a chronic ulcer, and is apt to give rise to skin cancers. The occurrence of similar conditions in old people with atrophic skin in other parts of the world has been well known, but in Queensland mostly young people become affected, and the condition has been attributed to the effect of sunlight and dry heat on a skin lacking in normal pigment. In the Torres Strait islands, the occurrence and prevalence of such diseases as malaria, filariasis, elephantiasis, yaws and others has been noted. The increase in the staff made more extended field work possible, and in the course of time different districts were visited in order to study the local prevalence of fever and disease. A survey of the whole of the coastal districts of British New Guinea was undertaken and yielded interesting results. The prevalence of the different types of malaria, of filariasis and of leprosy was mapped out, the existence of ankylostomiasis (caused by the American variety of the hookworm, which is widely distributed in the far East) was noted, and the occurrence of a number of hitherto undescribed diseases was observed. Amongst other diseases, a number of cases of gangosa, a condition that occurs not infrequently in some of the Pacific Islands, was encountered, and in the earliest stages of the disease a parasite was discovered which belongs to the genus *Blastomyces* and was named *Cryptococcus mutilans*, on account of the mutilation brought about by it. The etiology of chronic conjunctival affections, so prevalent in Western Queensland,

was investigated, and it was proved that true trachoma existed in Western Queensland and that an acute conjunctivitis was the most important predisposing cause. The epidemiology and parasitology of the so-called "Mossman fever" were investigated, and it was found that the disease could be transmitted by direct inoculation of blood of patients in the early stage of the disease into monkeys. This observation indicated that this fever can be separated from other fevers which cannot be transmitted to these experimental animals. A survey of the tropical diseases amongst the Europeans and aborigines of the Northern Territory was undertaken, and with the exception of yaws and ulcerative granuloma, the comparative absence of any serious tropical disease was established. Malarial fever was almost entirely absent amongst the aboriginal population and, except in a few localities, rarely attacked the European population. Unfortunately the outbreak of the war greatly curtailed the activities of the Institute. The energy of several of the workers was directed towards duties directly connected with the war, and the staff was obliged to assist as far as possible in relieving the tension caused by the scarcity of medical men throughout North Queensland and Australia in general. Prior to the outbreak of the war the staff of the Institute had embarked on an enquiry on a larger scale into the physiological changes of a white race living under such climatic conditions as prevail in the coastal districts of tropical Australia. Special attention was paid to the blood conditions of the white population, to the metabolism and to the influence of exercise, in order to gain an insight into the effects of manual labour upon the human organism under tropical conditions. At the same time the economic conditions as expressed in statistics were studied, and information collected in order to ascertain whether climatic conditions could be held responsible for any alterations of social conditions in North Queensland. An examination of the blood condition of school children, who had resided during the whole or most of their lives in Townsville, was carried out in order to obtain definite evidence whether any deterioration had taken place, in other words whether there existed amongst the North Queensland school children an anæmia which could be directly attributed to climatic conditions. The result of the investigation proved that the blood condition, as far as formed elements and colouring matter were concerned, did not differ in any way from that considered as normal in children born and bred in a temperate climate. In one respect, however, viz., in the relative preponderance of a certain type of cells—neutrophile leucocytes with a comparatively small number of nuclei—a definite alteration could be ascertained; the significance of this discovery is not yet clear. A biochemical investigation into the metabolism of a white race living in the Tropics was undertaken by estimating the different excretory substances in the urine of a number of subjects who had lived for some time in the tropics, and only quantitative variations from the averages obtained in temperate climates have been found. An extensive inquiry into the body temperature of a number of subjects under varying conditions has been carried out, and it was shown that during complete rest the rectal temperature did not show any variations from the limits of those observed in Europe, but a considerable rise was produced by slight muscular work, which rise was maintained for some time after the work had ceased. Further experiments into the gaseous metabolism, the mechanism of sweating, the influence of extreme wet bulb temperatures, etc., have been, and are still being carried out, and will in time furnish definite figures and facts in connexion with the solution of the question of the adaptation of a European race to conditions obtaining in the coastal districts of North Queensland. Researches have been carried out into diseases prevalent in North Queensland such as malaria, sprue, filariasis and others. A malarial survey of Cairns and the Innisfail district has been accomplished, and in the former case definite proposals have been submitted which when carried out faithfully would minimise the incidence of this infection. The staff of the Institute has also taken an active part in the hookworm campaign, undertaken by the Rockefeller Institute. A great deal of work has been done on the parasitic worms of men and beasts, and a great number of genera and species new to science have been described in various publications. General research has not been neglected, and a number of publications dealing with different subjects have been issued by the staff of the Institute. The entomological department has carried out a survey of mosquitoes and biting flies in Northern Australia and parts of British New Guinea. A special journey was made by the entomologist to the irrigation areas of New South Wales and Victoria, in order to ascertain the distribution of anophelines, to

which genus the malaria-transmitting mosquito belongs. The purpose of this survey was to advise as to whether the settlement of malaria-infected returned soldiers in these areas would form a menace by setting up conditions for the spread of this disease. Prior to the outbreak of war definite arrangements had been made to hold annually a course in tropical medicine and parasitology, but war conditions made the course impossible. In connexion with the Institute, the Townsville Hospital has set aside two wards containing twenty beds, which are under the direct control of the staff of the Institute, and are reserved for patients suffering from tropical complaints. Since their establishment, a number of cases have been admitted, treated, and their complaints investigated; amongst others, a number of returned soldiers and sailors suffering from a severe form of malarial fever were sent to the Institute for observation and treatment. The results of the work of the Institute were published at first in the form of an annual report, but later in various scientific journals, and have been re-issued from time to time in the form of "Collected Papers," which contain a variety of scientific investigations. The equipment has lately been perfected by installing electric power, and by providing additional accommodation for the breeding of small experimental animals, which are indispensable for the carrying out of scientific research. An extensive library on tropical medicine and other allied subjects has been collected since the inception of the Institute. The Institute extends hospitality to qualified workers who desire to investigate tropical disease or any problems in connexion with Northern Australia, and room and equipment are provided.

Further investigation on the effects of work under tropical conditions has been carried out on wharf lumpers working ships' cargo in the holds of vessels in Townsville during the summer months. These were controlled by readings of the dry and wet bulb thermometers and the katathermometer, both in the holds of ships and on the wharf, and at the same time rectal temperatures, blood pressure and pulse rate were taken. This investigation showed that climate has practically no effect on working men in the tropics. Further work on blood conditions in reference to the neutrophile leucocytes was carried out, this time on hookworm-infected children, and the results show that this infection has a definite effect in the blood formation and destruction. Work on the transmission of the dog filaria (*Dirofilaria immitis*) has been carried out, and it has been shown that dog fleas, as well as mosquitoes, are capable of acting as intermediate hosts. An extensive statistical inquiry into prevalence of diseases, birth rates and death rates in Queensland in comparison with Victoria and Tasmania was undertaken, and the result shows that Queensland is not more unhealthy than the southern parts of the continent. An examination of fæces from a number of healthy individuals showed that there are a considerable number of carriers of *Entamoeba histolytica* (the dysentery amœba) in North Queensland; although there is practically no evidence that they cause disease, the findings are on the whole the same as in England. In the Entomological Department, considerable work has been done in extending knowledge of the distribution and breeding habits of mosquitoes and March flies. A physiologist was appointed, and took up his duties in September. He has begun work on the effects of the climate on apparently healthy individuals, in regard to metabolism, but has not yet had time to publish any results.

3. Northern Territory.—While the Territory is conspicuously free from most of the diseases which cause such devastation in other tropical countries, a slight amount of malaria exists, and, although such cases as occur very rarely end fatally, the Administration is taking measures for the destruction of mosquito larvæ wherever settlements or permanent camps are formed, while precautions are being taken to prevent the collection of stagnant water in such localities.

4. Other States.—In Western Australia it is stated that malaria is not known to exist south of the 20th parallel, while filariasis has never been discovered. Mosquito-borne diseases are unknown in Victoria, South Australia, or Tasmania, and it is stated that filariasis is uncommon in New South Wales, the only cases known being imported ones. Kerosene and petroleum have been successfully used, both by municipalities and private individuals, to destroy mosquitoes at various places in these States.

§ 7. Supervision of Infant Life.

Reference has been made in general terms in preceding issues of the Official Year Book to the activities of the States in this direction (see No. 12, p. 1067).

The number of infantile deaths and the rates of infantile mortality in each State are dealt with in Section V. of this volume (see page 100), and it will be convenient to shew here particulars for the year 1921, classified according to metropolitan and other districts in each State.

INFANTILE DEATHS AND RATES OF INFANTILE MORTALITY FOR METROPOLITAN AND OTHER DISTRICTS, 1921.

Districts.		N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth. (b)
NUMBER OF INFANTILE DEATHS.								
Metropolitan	..	1,437	1,381	382	452	318	119	4,089
Other	..	1,981	1,201	719	332	293	330	4,856
RATE OF INFANTILE MORTALITY. (a)								
Metropolitan	..	62.38	73.82	61.81	73.64	80.55	75.17	68.62
Other	..	63.01	71.13	50.82	56.89	75.93	79.09	63.48

(a) *i.e.*, the number of deaths of infants under one year of age per thousand births.

(b) Exclusive of Territories.

It will be seen that in each State, with the exception of New South Wales and Tasmania, the rates of mortality are higher in the metropolitan than in other districts. The causes of "preventable" deaths may generally be attributed to milk poisoning, want of knowledge on the part of mothers, inability to nurse, and lack of the necessary medical facilities.

The figures in the foregoing table do not, however, completely represent the hygienic aspect of the question. For every infant death recorded there are probably three or four survivors who have sustained more or less serious permanent physical damage, quite apart from injuries at birth or congenital causes. It is stated that the far-reaching influence of the first year or two of life upon the whole subsequent physical welfare of the individual cannot be recognised too clearly, and it has been alleged that many serious defects and diseases occurring in later life may be credited to results ensuing from infantile disease. This is particularly the case in respect of digestive diseases.

§ 8. Medical Inspection of School Children.

1. **General.**—Reference to early efforts in the direction of securing an adequate physical record of school children will be found in Official Year Book No. 12, pages 1068-9, while Official Year Book No. 11, pages 1203 *et seq.* contains an account of the anthropometric records taken in connexion with military trainees.

2. **New South Wales.**—In this State, arrangements were made in May, 1907, for the medical inspection of school children in Sydney, and later in the year the work was extended to Newcastle. In 1911 the scheme was extended to the South Coast District and to a number of inland towns.

In 1913, the scheme of school medical inspection was re-organised so as to embrace every pupil in the State whose parents desired such medical inspection of their children.

Since this reorganisation was effected, two complete examinations have been made of the whole State, each school being revisited every three years. Of the 432,325 children examined, 263,232 (60 per cent.) were found to be suffering from physical defects needing treatment, which was obtained in 46 per cent. of those notified. Though this percentage of treatment as the direct result of medical inspection has risen during the two triennial periods from 40 per cent. to 53 per cent., nearly half of those requiring attention fail to receive the advantages of the ordinary facilities for treatment.

During the years 1918 and 1919, 70,003 and 55,740 children respectively were medically examined, exclusive of the number examined by the travelling hospital and the travelling dental clinics. The fall in the numbers for 1919 was due to the influenza epidemic, when the schools were closed for eleven out of the 42 working weeks of the school year.

Of the above totals, 44,205 (63.1 per cent.) and 35,826 (64.2 per cent.) were found suffering from physical defects. Of these 38,964 and 30,907 were treated, 21,098 and 16,374 being attended to by Departmental officers, while 17,865 and 14,533 were treated by outside agencies, including hospitals, lodge doctors, private practitioners, and dentists.

The number of children treated by the Departmental treatment schemes during 1918 and 1919 were as follows:—Travelling hospital, 2,281 and 2,539; six travelling dental clinics, 12,033 and 11,296; metropolitan dental clinic, 3,893 and 2,462; and the travelling ophthalmic clinic, 3,082 and 162; or a grand total of 21,289 and 16,459 respectively.

Full details of the system in operation will be found in Official Year Book No. 12 (pp. 1069, 1070).

3. **Victoria.**—Details regarding development of school medical inspection in this State are given in Official Year Book No. 12 (pp. 1070–1).

During the year ended 30th June, 1919, 3,954 children were examined, of whom 1,324 boys and 1,307 girls attended elementary and special schools, and 568 boys and 755 girls attended high schools. Teachers examined numbered 574, all of whom were women. A Dental Clinic, with three dental officers, is in operation.

The appointment of bush nurses has proved a boon in remote localities beyond convenient reach of medical aid.

4. **Queensland.**—In 1920, 20,923 children were examined, of whom 3,452 were found to be suffering from physical defects. (See also Official Year Book No. 12, p. 1071.)

The number of pupils dentally inspected during 1919 and 1920 was 16,294 and 16,392 respectively.

While adenoids and enlarged tonsils appear to be the principal defects throughout all the State schools, the children in the Northern and Western districts suffer largely from defective vision and trachoma. The work of the Ophthalmic Inspector is chiefly confined to these districts. The conclusion has been arrived at, as a result of the examinations, that such climatic conditions as dust, glare, heat, etc., so prevalent in the Western districts, which are often looked upon as the direct cause of serious blight or trachoma, are only predisposing causes, and can be safely ignored, provided elementary precautions are taken. The report of the Dental Inspectors, while still disclosing an appalling percentage of defects in the teeth of the children, shews a marked improvement.

5. **South Australia.**—(See also Official Year Book No. 12, p. 1071.)

During the year 1921, 3,452 children were examined, shewing a considerable percentage with defects of sight, hearing, nose and throat, sufficiently serious to interfere with their educational progress. In addition, the teeth of more than 2,700 children required urgent attention, having teeth in so bad a condition as to affect their general health. It was found that, while teeth were bad in all the schools examined, the other defects mentioned were exhibited in a considerably greater degree among the city children as compared with those living in country districts. In the Far North of the State, the teeth were better than in the metropolis; but the visual ailments were more numerous, the eye-condition of the children born in the arid areas being very unsatisfactory.

6. **Western Australia.**—During 1917, a medical officer for schools was appointed, and inspections were carried out in some of the schools in that and the following year. The number of children examined was 6,072 in 1917, 4,804 in 1918, 3,316 in 1919, and 2,805 in 1920. (See also Official Year Book No. 12, p. 1072.)

7. **Tasmania.**—The credit of being the first State in the Commonwealth to provide for the medical inspection of schools and school children in a systematic way rests with Tasmania, where, under the direction of the Chief Health Officer and the Director of Education, about 1,200 children attending schools in Hobart were inspected in 1906. (See also Official Year Book. No. 12, p. 1072.)

Under the scheme in operation, practically all the primary school children of the State come under medical examination at least once in every two years. The examination in 1920 covered 5,179 children. During 1916 school dental clinics were established in Hobart and Launceston. In that year 3,232 individual children were examined, 4,573 in 1917, 4,449 in 1918, 3,063 in 1919, and 2,888 in 1920.

§ 9. Nursing Activities.

By means of various nursing organizations throughout the Commonwealth, the benefits of professional advice and oversight of trained nurses are conveyed to the homes of workers and settlers, where skilled assistance would probably be otherwise unprocurable. While charitable aid has been to some extent responsible for the inauguration and extension of these movements, the trend of the various undertakings is in the direction of eliminating the element of charity, and, by raising subscriptions on a co-operative basis, making the scheme self-supporting. Details of organization and administration vary in different localities. Since the first bush nurse was settled at Beech Forest, Victoria, in 1911, the system has made satisfactory progress. Government aid, in the shape of free railway travelling for nurses, small monetary grants for professional advice in schools, etc., is given. In 1920 the British Red Cross made available a sum of £150,000, of which £15,000 was placed at the disposal of the Red Cross in each State, the income to be applied to bush nursing for returned soldiers and sailors and their families. By the nursing organizations, baby clinics, etc., a vast amount of useful information and advice concerning diet, hygiene, etc., is disseminated throughout the Commonwealth.

SECTION XXXI.

MISCELLANEOUS.

§ 1. Immigration, Passports, and Aliens Registration.

(A) The Encouragement of Immigration into Australia.

1. **Introduction.**—Various measures have from time to time been adopted by the Commonwealth and State Governments, as well as by private societies and individuals, with a view to promoting the immigration of suitable classes of settlers into Australia. The activities of the Commonwealth Government (which is vested with constitutional powers in regard to immigration under section 51, xxvii., of the Constitution Act 1900) with respect to the encouragement of immigration, were practically confined to advertising the resources and attractions of Australia by means of exhibitions and in handbooks, newspapers, and periodicals. With the outbreak of war the immigration operations were almost entirely suspended.

2. **Joint Commonwealth and States Immigration Scheme.**—In 1920 an arrangement was arrived at between the Commonwealth and State Governments under which the Commonwealth is to be responsible for the recruiting of immigrants abroad and for their transport to Australia; whilst the State Governments, on their part, are to advise the Commonwealth as to the numbers and classes of immigrants which they are prepared to receive. Briefly stated, the Commonwealth will select the immigrant according to the requirements of the State concerned and bring him to Australia; and on his arrival the State Government will assume the responsibility for placing him in employment or upon the land. Incidentally, the Commonwealth will undertake all publicity and propaganda in connexion with the encouragement of immigration.

3. **Assisted and Nominated Passages.**—The Commonwealth Government will donate £12 towards the passages of approved settlers for Australia. Further assistance will be granted by way of loans in special cases. Under the joint scheme the immigrants entitled to part-paid fares are divided into two classes—"Assisted" immigrants and "Nominated" immigrants. "Assisted" immigrants are those who are originally recruited by the Commonwealth overseas. "Nominated" immigrants are those nominated by persons resident in the Commonwealth, and the nominators, who must submit their applications through the Officers in Charge of the State Immigration Offices in the various capital cities, are required to undertake to look after their nominees upon arrival, and to see that they do not become a burden upon the State.

4. **Overseas Settlement Committee's Free Passage Scheme.**—Free passages to Australia will be granted by the Overseas Settlement Committee, London, to British ex-service men and their dependents and to British ex-service women who are accepted as suitable settlers under the Joint Commonwealth and State Immigration Scheme. This concession will remain in force until the end of 1921, and every Australian of good repute is eligible to nominate British ex-service men and women and to have their nominees landed in Australia free of charge to both nominator and immigrant.

Intending settlers or immigrants may, on application, obtain full information from—

THE DIRECTOR OF MIGRATION AND SETTLEMENT,
AUSTRALIA HOUSE,

THE STRAND,

LONDON, W.C.2,

or,

THE COMMONWEALTH SUPERINTENDENT OF IMMIGRATION,
MELBOURNE,
AUSTRALIA.

(B) The Regulation of Immigration into Australia.

1. **Pre-Federal Restrictions.**—(i) *Alien Races.* The several States of Australia had regarded it as desirable, long prior to Federation, to impose certain restrictions upon the admission of persons wishing to become inhabitants of those States. The influx of Chinese for example, was limited by stringent statutes, and later, general Acts were passed in some of the States which had the effect of restricting the immigration of other—principally Asiatic—races.

(ii) *Undesirable Immigrants.* Further restrictions were placed upon the admission of persons who were undesirable as inhabitants, either for medical or moral reasons, or who were likely to be an economic burden upon the community.

2. **Powers and Legislation of the Commonwealth.**—(i) *Constitutional Powers.* By Chap. I., Pt. V., Sec. 51, xxvii. and xxviii. of the Commonwealth Constitution Act the Parliament of the Commonwealth is empowered to make laws with respect to immigration and emigration and the influx of criminals. (See page 16 herein.)

(ii) *Legislation.* The powers above specified have now been exercised by the Commonwealth Government, and the laws passed in pursuance thereof supersede the previously existing State laws. The present Commonwealth Acts dealing with Immigration are the Immigration Act 1901–1920 and the Contract Immigrants Act 1905. A summary of the provisions of these Acts (excepting the provisions of the Amending Immigration Act 1920, which are given below), containing particulars regarding the admission of immigrants, prohibited immigrants, the liabilities of shipmasters and others, and kindred matters will be found in preceding Year Books (see Year Book, No. 12, pp. 1166 to 1168).

3. **Amending Immigration Act 1920.**—The principal provisions of this Act, which came into operation as from the 2nd December, 1920, are those prohibiting the entry of (a) any person who advocates the overthrow by force or violence of the established Government of the Commonwealth or of any State or of any other civilized country, or of all forms of law, etc.; (b) for a period of five years, any person of German, Austro-German, Bulgarian, or Hungarian parentage and nationality, or Turk of Ottoman race; (c) any person over 16 years of age who, on demand by an officer, fails to prove that he is the holder of a valid passport; (d) any person who has been deported under any Act.

Section 9 of the War Precautions Act Repeal Act also provides for prohibiting the entry of any British subject who upon being required to make and subscribe an oath or affirmation of loyalty fails to do so.

4. **Statistics.**—The following tables shew the number of persons who desired but were not permitted to land, those who were allowed to land, and the nationality of the persons admitted:—

PERSONS ADMITTED OR REFUSED ADMISSION TO COMMONWEALTH UNDER PROVISIONS OF IMMIGRATION RESTRICTION ACT, 1917 TO 1921.

Year.	Persons Admitted who Passed Education Test.	Persons Admitted without Passing Education Test.	Persons Refused Admission.
1917	Nil	53,036	13
1918	Nil	77,169	16
1919	Nil	223,736	27
1920	Nil	104,351	26
1921	Nil	84,944	29

NATIONALITIES OF PERSONS ADMITTED WITHOUT TEST, 1914 TO 1921.

Nationality.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
EUROPEANS—								
Austrians	676	(c)27	(c)10	..	(c)8	(c)22	3	(h)5
Belgians	63	105	69	35	35	31	90	73
British	93,136	60,505	50,489	45,988	d71,765	e217,037	f95,879	76,518
Danes	478	305	173	137	110	124	189	201
Dutch	287	182	156	194	163	526	699	321
French	1,187	595	516	676	571	815	785	529
German	3,395	(c)890	(c)452	(c)58	(c)36	(c)54	(g)115	(h)76
Greeks	772	361	160	265	288	93	131	258
Italians	1,642	645	179	93	24	116	631	1,278
Maltese	464	57	173	212	14	47	88	132
Poles	12	2	..	1	3	2	27	51
Portuguese	12	1	..	7	8	9	9	8
Rumanians	34	6	8	13	9	6	10	9
Russians	1,448	716	497	341	199	142	121	100
Scandinavians	1,489	1,202	786	552	493	448	437	487
Spaniards	169	206	51	37	23	37	87	33
Swiss	220	64	40	21	39	30	90	149
Turks	19	1	1	..	..	(c)1	..	..
Other Europeans	(a)165	13	7	1	..	106	197	344
AMERICANS—								
North Americans	1,529	1,066	1,050	870	749	1,102	1,698	1,577
South Americans	31	5	16	24	12	8	16	35
American Indians	1	1	..	..	..	..	6	..
Negroes	23	9	8	9	2	5	5	6
West Indians	3	2	9	1	3	5	..	7
ASIATICS—								
Afghans	2	3	..	..	..	..	..	..
Arabs	19	2	6	..	..	..	2	4
Burmese	1	1	..	..	..	..	..	..
Chinese	1,975	2,287	2,289	2,016	1,723	1,495	1,753	1,833
Cingalese	9	6	18	11	2	7	12	19
Filipinos	4	15	15	15	10	13	10	13
Hindoo	305	144	133	111	102	203	241	163
Japanese	387	423	1,089	888	431	521	345	282
Javanese	20	8	4	20	21	27	12	6
Malays	291	285	254	190	65	320	207	44
Syrians	19	5	14	13	1	6	56	39
Timorese .. ..	..	..	..	..	..	..	..	34
OTHER RACES—								
Maoris	21	16	6	2	1	..	1	..
Mauritians	1	..	..	..	..	..	5	..
Pacific Islanders	101	37	59	40	43	24	47	46
Papuan	189	185	178	132	135	135	30	170
Unspecified	(b)104	(b)28	(b)225	63	(b)88	(b)214	85	44
Total	110,701	70,436	59,140	53,036	77,169	223,736	104,351	84,944

(a) Including 162 Bulgarians. (b) A large percentage of these immigrants was Timorese.
(c) Principally prisoners of war and their families. (d) Including 44,151 returned troops and nurses.
(e) Including 163,756 troops and nurses. (f) Including 11,546 returned troops and nurses.
(g) Landed for transhipment or under special authority. (h) Landed on exemption certificates or under special authority.

The following table shews to what extent immigration has taken place into the several States of the Commonwealth from 1917 to 1921 :—

IMMIGRATION INTO THE SEVERAL STATES OF THE COMMONWEALTH, 1917 TO 1921.

Year.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	N.T.	C'wealth.
1917 ..	32,825	10,701	1,814	1,540	4,761	1,133	262	53,036
1918 ..	37,375	31,114	1,474	1,958	5,043	..	205	77,169
1919 ..	96,331	84,751	6,007	16,897	18,507	1,163	80	223,736
1920 ..	69,135	19,302	4,151	4,877	6,803	1	82	104,351
1921 ..	54,578	15,883	4,269	3,143	7,029	6	36	84,944

(C) Passports.

Provision is made in the Immigration Act 1920 (see paragraph 3 on page 1017) for requiring the production of passports by all persons over 16 years of age who are entering the Commonwealth. Similarly, the Passports Act 1920 provides that no person over the age of 16 years shall leave the Commonwealth unless—

- (a) he is the holder of a passport or other document authorizing his departure; and
- (b) his passport has been viséed or indorsed in the prescribed manner for that journey, and the visé or indorsement has not been cancelled.

Among the exceptions to this requirement are natural-born British subjects leaving for New Zealand, Papua, or Norfolk Island; members of the crew of any vessel who sign on in Australia for an oversea voyage and who satisfy an officer that they are by occupation seafaring men; aboriginal natives of Asia, or of any island in the East Indies, or in the Indian or Pacific Oceans. The charge for a Commonwealth passport is 10s., and for a visé 2s.

(D) Registration of Aliens.

The Aliens Registration Act 1920, which replaced the War Precautions (Aliens Registration) Regulations, was proclaimed to come into operation as from the 1st January, 1921. The enforcement of the Act, however, was discontinued as from 31st January, 1922, and aliens in Australia are no longer required to register themselves or to report their changes of abode.

§ 2. Patents, Trade Marks, and Designs.

1. Devolution of Jurisdiction upon the Commonwealth.—Prior to the establishment of Federation, and for a few years thereafter, each Australian State possessed independent jurisdiction in respect of patents, copyrights, trade marks, and designs, and had, with the exception of Tasmania in regard to copyrights, enacted its own laws. Any person, therefore, who desired to obtain the grant of a patent, or the registration of any copyright, trade mark, or design had necessarily, with the exception aforesaid, to incur the trouble and expense of making separate applications in each State. The Commonwealth Constitution Act conferred upon the Federal Parliament power to legislate respecting these matters. (See page 16 hereinbefore.) The Patents Act of 1909 applied the laws relating to patents for inventions to the Territory of Papua.

The State Acts, though in general based upon the Imperial Statutes dealing with these subjects, were not wholly governed by them. The Commonwealth Acts, both in regard to principle and practice, have the same general foundation as the Imperial Statutes, but in some respects have been modified and brought into line in accordance with Australian experience.

2. Patents.—(i) *General.* The first Commonwealth Patents Act was passed in 1903, and was amended in 1906, 1909, 1910, 1915 and 1916. (See page 35 *ante*.) Under these Acts, which are administered by a "Commissioner of Patents," the powers and functions exercised under the States Acts became vested in the Commonwealth. Comparatively small fees, totalling £8, are now sufficient to obtain for an inventor protection throughout the Commonwealth and the Territory of Papua, and the only renewal fee (£5) is payable before the expiration of the seventh year of the patent, or within such extended time, not exceeding one year, and upon payment of further fees as may be allowed. Particulars in regard to the terms under which patents are granted, publications etc., of the Commonwealth Patents Office, have been given in full in preceding issues of the Official Year Book. (See Year Book 12, p. 1170 *et seq.*) Limits of space preclude their repetition in the present issue.

(ii) *Applications Filed, Provisional Specifications Accepted, and Letters Patent Sealed.* The numbers of individual inventions in respect of which applications were filed in the Commonwealth during each year from 1913 to 1921 inclusive are shewn in the following table. The number of applications accompanied by provisional specifications and the number of patents sealed in respect of applications made in each year are also shewn.

**PATENTS.—APPLICATIONS FILED AND LETTERS PATENT SEALED IN THE
COMMONWEALTH, 1913 TO 1921.**

Year	1913	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
No. of applications	4,163	3,436	3,117	2,906	3,244	3,543	4,166	5,481	5,072
No. of applications accompanied by provisional specifications ..	2,626	2,232	2,133	1,980	2,186	2,405	2,468	2,875	3,378
Letters patent sealed during each year	1,495	2,098	1,279	1,162	1,218	1,130	1,452	2,033	2,573

(iii) *Revenue of Patent Office.* The revenue of the Commonwealth Patent Office for each year from 1913 to the end of the year 1921 is shewn in the subjoined table :—

REVENUE OF COMMONWEALTH PATENT OFFICE, 1913 TO 1921.

Particulars.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Fees collected under—	£	£	£	£	£	£	£	£	£
States Patents Acts ..	50	16	19	15	11	15	4	31	5
Patents Acts 1903-16 ..	18,800	21,575	15,463	14,055	15,629	16,223	19,764	27,100	28,516
Receipts from publications	283	274	298	294	281	317	414	417	385
Petty receipts	49	81	6	4	..	..	..	..	..
Total	19,182	21,946	15,786	14,368	15,921	16,555	20,182	27,548	28,906

3. *Trade Marks.*—The remarks made concerning the unification of the patent system of the Commonwealth apply equally to trade marks. Under the Trade Marks Act 1905, which came into force on the 2nd July, 1906, the Commissioner of Patents is appointed to act also as “Registrar of Trade Marks.” The Trade Marks Act of 1905 was amended by the Patents, Trade Marks, and Designs Act 1910, assented to on the 14th November, 1910, by the Trade Marks Act 1912, and by the Trade Marks Act 1919, and is now cited as the Trade Marks Act 1905-1919. The principal objects of the amending Act were to enlarge the scope of marks capable of registration, and repeal the provisions of the Act of 1905 relating to the “Workers Trade Mark,” the provisions regarding which were held to be unconstitutional. Special provisions for the registration of a “Commonwealth Trade Mark” are contained in the Act of 1905 and are applicable to all goods included in or specified by a resolution passed by both Houses of Parliament that in their opinion the conditions as to remuneration of labour in connexion with their manufacture are fair and reasonable. (See also Official Year Book 12, p. 1173.)

4. *Designs.*—The Designs Act of 1906 came into operation on the 1st January, 1907, being subsequently amended by the Patents, Designs and Trade Marks Act 1910, and the Designs Act 1912, and is now cited as the Designs Act 1906-12. Under this Act a Commonwealth Designs Office has been established and the Commissioner of Patents appointed “Registrar of Designs.” (See also Official Year Book 12, p. 1174.)

5. *Applications for Trade Marks and Designs.*—The following table gives particulars of applications for trade marks and designs received and registered under the Commonwealth Acts from 1913 to 1921 inclusive :—

**APPLICATIONS FOR TRADE MARKS AND DESIGNS RECEIVED AND REGISTERED
UNDER COMMONWEALTH ACTS, 1913 TO 1921.**

Applications.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
RECEIVED.									
Trade Marks	1,957	1,619	1,526	1,636	1,532	1,739	2,634	3,045	2,410
Designs	301	267	326	298	266	262	256	278	357
REGISTERED.									
Trade Marks	1,468	1,272	1,015	1,126	1,033	1,095	1,229	1,651	2,542
Designs	281	220	266	253	236	223	203	226	300

The following table shows the revenue of the Trade Marks and Designs Office during the years 1917 to 1921 :—

REVENUE OF TRADE MARKS AND DESIGNS OFFICE, 1917 TO 1921.

Particulars.	1917.			1918.			1919.			1920.			1921.		
	Trade Marks.	Designs.	Publications.	Trade Marks.	Designs.	Publications.	Trade Marks.	Designs.	Publications.	Trade Marks.	Designs.	Publications.	Trade Marks.	Designs.	Publications.
	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£
Fees collected under State Acts	23	..	..	14	..	..	192	..	..	9	..	..	1	..	..
Fees collected under Commonwealth Acts	3,978	312	94	4,330	318	114	5,314	346	101	12,607	368	107	10,557	427	122
Total	4,006	312	94	4,344	318	114	5,506	346	101	12,616	368	107	10,558	427	122

6. Enemy Patents and Trade Marks.—On the outbreak of the European war the Commonwealth Government deemed it advisable to extend the powers of the Governor-General of the Commonwealth during the continuance of hostilities with reference to patents, trade marks, and designs, the property of alien enemies.

Acts Nos. 15 and 16 of 1914 were accordingly passed by the Commonwealth Parliament in November, 1914, giving the Governor-General power to make the necessary regulations. Further information in this connexion will be found in Year Book No. 13, p. 1104. The Acts expired by effluxion of time on 28th February, 1922.

§ 3. Copyright.

1. Copyright Legislation.—Prior to the 1st January, 1907, the date on which the Commonwealth Copyright Act of 1905 came into operation, the subject of copyright was regulated by the laws of the separate States. In general, the provisions of State laws were similar to those of the Imperial Copyright law, including the law of 1842 and the earlier unrepealed or subsequent Acts, the most important of which were the Colonial Copyright Act 1847 and the International Copyright Act of 1886. They were also generally included under the British international relations embracing the Berne-Paris provisions of the International Copyright Union and the reciprocal relations with the United States of America, with the exception that in the Austria-Hungary Treaty, New South Wales and Tasmania were not parties, because they did not exercise the right of ratification especially reserved to individual colonies.

Though the Commonwealth Copyright Act of 1905 took the place of the State Copyright Acts formerly in force, it left unaffected existing rights under the State laws, but transferred the administration thereof to the Commonwealth. Provision was also made under the law of 1905 for the registration of International and State copyrights. The principal features of the Act of 1905 are given in previous issues of the Year Book (see No. 9, p. 1119). This Act was repealed by the Copyright Act of 1912, which was assented to and became operative on the 20th November, 1912. Subject to modifications relating to procedure and remedies, the Commonwealth law of 1912 adopted the British Copyright Act of 1911, and declared the latter law to be in force within the Commonwealth as from the 1st July, 1912. The British Act extends throughout the whole of His Majesty's dominions, but it is not to be in force in a self-governing dominion unless enacted by the legislature thereof either in full or with modifications relating exclusively to procedure and remedies necessary to adapt the Act to the circumstances of the dominion. (See also Official Year Book No. 12, p. 1176.)

By an Order in Council made by the Government of the Commonwealth of Australia, simultaneously with the issue of a Proclamation by the President of the United States of America on the 15th March, 1918, reciprocal protection was extended to citizens of the respective countries in regard to unpublished literary, dramatic, musical and artistic works in which copyright existed on the date mentioned, or may thereafter subsist under the laws of these countries. The enjoyment of the rights conferred by the Order in Council is subject to the accomplishment of the conditions and formalities prescribed by law of the United States of America, or, in other words, registration at the Library of Congress, Washington, D.C., U.S.A., is made a condition precedent to the protection of Australian copyright property in the United States of America.

Further details relative to the provisions of the Act of 1912 will be found in previous issues of the Year Book (see No. 8, p. 1066).

2. **Applications for Copyright.**—The following table gives particulars of applications for copyright received and registered under the Commonwealth Acts from 1917 to 1921 inclusive:—

APPLICATIONS FOR COPYRIGHT RECEIVED AND REGISTERED UNDER COMMONWEALTH ACTS, 1917 TO 1921.

Year.	Copyrights.			
	Literary.	Artistic.	International and State.	Total.
APPLICATIONS RECEIVED.				
1917	835	141	..	976
1918	816	261	4	1,081
1919	923	216	1	1,140
1920	922	203	..	1,125
1921	953	146	5	1,104
APPLICATIONS REGISTERED.				
1917	793	140	..	933
1918	750	232	3	985
1919	850	197	..	1,047
1920	879	185	..	1,064
1921	809	133	4	951

The revenue from copyright for the years 1917, 1918, 1919, 1920, and 1921, was £256, £309, £284, £287, and £292 respectively.

§ 4. Old-age and Invalid Pensions.

1. **General.**—In previous issues an account has been given of the introduction of the old-age pension system into Australasia, together with a detailed description of the Commonwealth Invalid and Old-age Pensions Act of 1908, which became operative on 1st July, 1909. (See Year Books, Nos. 3 to 8.) An amendment of this Act, assented to on 30th September, 1916, made a very important alteration. Section 24 originally enacted that the pension “shall not exceed the rate of twenty-six pounds per annum in any event, nor shall it be at such a rate as will make the pensioner's income, together with pension, exceed fifty-two pounds per annum.” It was amended (a) by omitting the words “twenty-six pounds,” and inserting in their stead the words “thirty-two pounds ten shillings”, and (b) by omitting the words “fifty-two pounds” and inserting in their stead the words “fifty-eight pounds ten shillings.” Section 26 originally enacted that if an applicant for pension was in receipt of board or lodging, the actual or estimated

value or cost of this should be counted as income, to an extent not exceeding five shillings per week. This was amended by omitting the words "five shillings" and inserting in their stead the words "seven shillings and sixpence."

In 1919 the Act was again amended, and the rate of pension raised to £39 per annum and the maximum amount allowable to £65 per annum. The estimated value of board and lodging was raised to 10s. per week.

In 1920 special provision was made for permanently blind persons, by which the amount of pension may be at such a rate (not exceeding £39) per annum, as will make his income, together with the pension, equal to an amount not exceeding £221 per annum, or such other amount as is declared to be a basic wage.

2. Amounts of Old-age Pensions.—Details regarding Old-age Pensions for the several States as at 30th June, 1921, are as follows:—

COMMONWEALTH OLD-AGE PENSIONS, YEAR ENDING 30th JUNE, 1921.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	C'wealth.
Claims examined during year ending 30th June, 1921 ..	5,994	4,017	1,929	1,231	925	746	14,842
Claims rejected'	886	557	473	142	158	79	2,295
Claims granted	5,108	3,460	1,456	1,089	767	667	12,547
Transfers from other States ..	531	389	179	201	147	93	1,540
Existing 30th June, 1920 ..	37,358	29,565	12,722	9,828	4,791	4,906	99,170
	42,997	33,414	14,357	11,118	5,705	5,666	113,257
Deduct—							
Deaths	2,900	2,152	923	810	447	369	7,601
Cancellations and transfers to other States ..	1,060	877	415	421	256	212	3,241
	3,960	3,029	1,338	1,231	703	581	10,842
Old-age Pensions existing on 30th June, 1921 ..	39,037	30,385	13,019	9,887	5,002	5,085	102,415

3. Sexes of Old-age Pensioners.—Of the 102,415 persons in receipt of pensions at 30th June, 1921, 40,222 (or 39 per cent.) were males, and 62,193 (or 61 per cent.) were females. Details for the several States are as follows:—

SEXES OF OLD-AGE PENSIONERS, 30th JUNE, 1921.

State.	Males.	Females.	Total.	(a) Masculinity.
New South Wales	16,033	23,004	39,037	69.70
Victoria	11,415	18,970	30,385	60.17
Queensland	5,432	7,587	13,019	71.60
South Australia	3,529	6,358	9,887	55.50
Western Australia	2,031	2,971	5,002	68.36
Tasmania	1,782	3,303	5,085	53.95
Total	40,222	62,193	102,415	64.67

(a) Number of males to each 100 females.

4. **Ages and Conjugal Condition of Old-age Pensioners Granted Pensions during 1920-21.**—The recorded ages of the 12,547 persons to whom pensions were granted during the year 1920-21 varied considerably, ranging from 2,506 at age 60 to one at age 104. Particulars for quinquennial age-groups are as follows:—

AGES AND CONJUGAL CONDITION OF PERSONS GRANTED OLD-AGE PENSIONS DURING 1920-21.

Age Groups.	Males.				Females.				Grand Total.
	Single.	Married.	Widowed.	Total.	Single.	Married.	Widowed.	Total.	
60-64 ..	60	174	57	291	582	2,277	2,104	4,963	5,254
65-69 ..	868	2,110	806	3,784	77	599	546	1,222	5,006
70-74 ..	143	515	234	892	87	204	290	521	1,413
75-79 ..	42	167	114	323	16	65	191	272	595
80-84 ..	17	27	53	97	12	12	72	96	198
85-89 ..	1	15	14	30	2	4	38	44	69
90 and above ..	..	..	6	6	..	..	11	11	17
Total ..	1,181	8,008	1,284	5,423	726	3,161	3,237	7,124	12,547

5. **Commonwealth Claims for Invalid Pensions.**—Details as at 30th June, 1921, are given hereunder:—

COMMONWEALTH INVALID PENSIONS.—YEAR ENDING 30th JUNE, 1921.

Particulars.	N.S.W.	Vic.	Q'land.	S.A.	W.A.	Tas.	Total C'wealth.
Claims examined during year ending 30th June, 1921 ..	3,441	2,622	1,305	519	837	461	9,185
Claims rejected	1,087	632	460	101	295	164	2,739
Claims granted	2,354	1,990	845	418	542	297	6,446
Transfers from other States ..	148	149	44	41	20	13	415
Existing 30th June, 1920 ..	14,337	10,277	4,624	2,258	1,788	1,947	35,231
	16,839	12,416	5,513	2,717	2,350	2,257	42,092
Deduct:							
Deaths	875	824	305	123	185	102	2,419
Cancellations and Transfers to other States ..	577	418	248	156	161	132	1,692
	1,452	1,242	553	284	346	234	4,111
Invalid Pensions existing 30th June, 1921	15,387	11,174	4,960	2,433	2,004	2,023	37,981

6. **Sexes of Invalid Pensioners.**—Of the 37,981 persons in receipt of an invalid pension on 30th June, 1921, 17,643, or 46 per cent., were males, and 20,338, or 54 per cent., were females. Details for the several States are as follows :—

SEXES OF INVALID PENSIONERS, 30th JUNE, 1921.

State.	Males.	Females.	Total.	(a) Masculinity.
New South Wales	7,016	8,371	15,387	83.81
Victoria	5,322	5,852	11,174	90.94
Queensland	2,506	2,454	4,960	102.12
South Australia	904	1,529	2,433	59.12
Western Australia	1,022	982	2,004	104.07
Tasmania	873	1,150	2,023	75.91
Commonwealth	17,643	20,338	37,981	86.75

(a) Number of males to each 100 females.

7. **Ages and Conjugal Condition of Persons Granted Invalid Pensions during 1920-21.**—The recorded ages of the 6,446 persons who received invalid pensions in the period under review varied from 16 to 81. The following table gives particulars for those up to age 20 and in decennial age-groups after age 20 :—

AGES AND CONJUGAL CONDITION OF PERSONS GRANTED INVALID PENSIONS IN 1920-21.

Age Groups.	Males.				Females.				Grand Total.
	Single.	Married.	Widowed.	Total.	Single.	Married.	Widowed.	Total.	
16-19 ..	216	..	..	216	203	..	..	203	419
20-29 ..	223	55	9	292	368	26	15	409	701
30-39 ..	198	211	23	432	242	93	56	391	823
40-49 ..	185	298	37	520	213	186	153	552	1,072
50-59 ..	296	594	117	1,007	241	512	566	1,319	2,326
60-69 ..	198	476	144	818	35	86	113	234	1,052
70-79 ..	10	10	14	34	2	5	10	17	51
80 and over ..	..	1	..	1	..	..	1	1	2
Total ..	1,331	1,645	344	3,320	1,304	908	914	3,126	6,446

8. **Cost of Administration.**—Under the State régime the cost of administration differed considerably in the several States, and for 1908-9 represented in New South Wales 4.17 per cent. of the amount actually paid in pensions. In Victoria for the same year the corresponding percentage was 0.70. During the year 1920-21 the total cost to the Commonwealth of administering the Old-age and Invalid Pensions Department was £88,271, or about 1.7 per cent. of the amount actually paid in pensions. Details concerning the cost of administration for 1920-21 are as follows :—

	£
Salaries	30,491
Temporary assistance	2,901
Services of magistrates, registrars, clerks of courts, and police ..	3,605
Commission to Postmaster-General's Department, at 12s. 6d. per £100 paid	31,943
Postage and telegrams	4,310
Other expenses	15,021
Total	88,271

The actual sum disbursed in Old-age and Invalid Pensions in the financial year 1920-21, apart from the cost of administration, was £5,074,336.

The following table gives detailed statistical information concerning the working of the Act for the last five years:—

INVALID AND OLD-AGE PENSIONS, 1917 TO 1921.

Financial Year ended 30th June—	Number of Pensioners.			Amount Paid in Pensions.	Amount Paid to Asylums for Maintenance of Pensioners.	Total Payment to Pensioners and Asylums.	Cost of Administration.	Cost of Administration per £100 paid to Pensioners and Asylums.	Average Fort-nightly Pension on last day of Financial Year.
	Old-Age.	Invalid.	Total.						
				£	£	£	£	£ s. d.	s. d.
1917	93,672	26,781	120,453	3,518,987	35,148	3,554,135	54,393	1 10 7	24 3
1918	95,387	29,912	125,299	3,753,977	39,060	3,793,037	54,355	1 8 8	24 3
1919	95,969	31,999	127,968	3,880,865	55,750	3,936,615	63,280	1 12 2	24 2
1920	99,170	35,231	134,401	4,411,629	72,675	4,484,304	74,120	1 13 1	29 1
1921	102,415	37,981	140,396	5,074,336	75,905	5,150,241	88,271	1 14 3	28 9

§ 5. Maternity Allowance.

The Federal Parliament, during the session of 1912, passed an Act (assented to on 10th October, 1912) providing under certain circumstances for the payment of maternity allowances. The scope and main provisions of the Act are given in Year Book No. 14, p. 1047.

The following table gives a statistical summary of the most important points in connexion with the working of the Maternity Allowance Act for the years 1917 to 1921.

COMMONWEALTH MATERNITY ALLOWANCE.—SUMMARY, 1917 TO 1921.

Year ended 30th June—	Claims Paid.	Claims Rejected.	Amount Paid.	Cost of Administration.	Cost per £100 of allowance paid.
			£	£	£ s. d.
1917	132,407	459	662,035	13,735	2 1 6
1918	126,885	404	634,425	12,250	1 18 7
1919	124,016	510	620,080	11,369	1 16 8
1920	125,173	621	625,865	12,785	2 0 10
1921	140,152	622	700,760	16,173	2 6 2

§ 6. War Pensions.

1. **General.**—An Act for the provision of war pensions was passed in 1914 and amended in 1915 and 1916. Its scope can be determined by the following extract from Section 3. "Upon the death or incapacity of any member of the forces whose death or incapacity results, or has resulted, from his employment in connexion with warlike operations in which His Majesty is, or has since the commencement of the present state of war been engaged, the Commonwealth shall, subject to this Act, be liable to pay to the member or his dependents, or both, as the case may be, pensions in accordance with this Act." Full details as to rates of pension, etc., are given in the section on Defence, page 932.

2. **Number of Pensioners, 1921.**—The following statistical tables shew the position of affairs as at the 30th June, 1921 :—

NUMBER OF WAR PENSIONERS AT 30th JUNE, 1921.

Where Paid.	Incapacitated Members of the Forces.	Dependents of—		Total.
		Deceased Members.	Incapacitated Members.	
India	7	7	2	16
South Africa	53	45	65	163
New Zealand	255	267	186	708
New South Wales	25,525	13,321	26,885	65,731
Victoria	26,053	15,410	33,338	74,801
Queensland	9,463	4,320	9,817	23,600
South Australia	4,749	4,195	5,719	14,663
Western Australia	8,373	4,307	10,555	23,235
Tasmania	3,435	2,096	4,264	9,795
London	1,578	5,083	3,164	9,825
Total	79,491	49,051	93,995	222,537

EXPENDITURE IN 1920-21.

	£		£
New South Wales	2,331,633	Tasmania	312,909
Victoria	2,317,746	London and elsewhere	348,816
Queensland	814,359		
South Australia	513,601	Total	7,389,739
Western Australia	750,675		

The cost of administration in 1920-21 was £109,662.

§ 7. Local Option.

1. **General.**—The principles of local option as to the sale of fermented and spirituous liquors have been applied in all the States of the Commonwealth. The last State to adopt these principles was Western Australia, where provision was made for a system of local option by the Licensing Act 1911. Upon the outbreak of war in 1914, various enactments were made in several of the States relative to the control of the liquor traffic. While not in any way pertaining to the scheme of local option, these measures are probably affecting public opinion in regard to this matter.

2. **New South Wales.**—(i) *Local Option.* The Act in force relating to local option in this State in the Liquor Act 1912, which consolidated the laws relating to publicans, brewers, and other persons engaged in the brewing, manufacture or sale of liquor. The local option vote is taken in every electorate on the day fixed for the poll therein at each general election, but special provision was made under the Liquor Amendment Act 1916 to suspend the taking of the local option vote at the general election in 1917. The option with regard to licenses extends to public-houses, wineshops, and clubs, and the persons entitled to vote are those entered on the Parliamentary electoral rolls. The first local option vote under the Liquor (Amendment) Act of 1905 was taken at the general election in 1907, and the second at the election in 1910, while the vote in 1913 was taken under the Liquor Act 1912. In 1907, when the first local option vote was taken, there were 3,023 hotels in existence; of this number 293 were ordered to be closed at varying dates. At the election of 1910 there were 2,869 hotels, and of these, 28 were ordered to be closed. At the 1913 election there were 2,719 hotels, of which 23 were closed before July, 1917. The number of wine licenses at the time of the vote of 1907 was 633, of which

46 were abolished. In 1910, 5 wine shops out of 565 were closed, and in 1913, 7 out of 514 were ordered to be closed. The resolutions to be submitted, and the effects of such resolutions, if carried, are given *in extenso* in previous issues of this book. The following statements shews the number of electorates in which each of the resolutions was carried :—

NEW SOUTH WALES.—EFFECTS OF LOCAL OPTION VOTES, 1907, 1910, and 1913.

Particulars	General Election, 1907.		General Election, 1910.		General Election, 1913.	
	Elector-ates.	Votes.	Elector-ates.	Votes.	Elector-ates.	Votes.
<i>Results in favour of—</i>						
(a) Continuance ..	25	209,334	76	324,973	75	380,707
(b) Reduction ..	65	75,706	14	38,856	15	44,453
(c) No license ..	Nil	178,580	Nil	212,889	Nil	245,202

(ii) *Liquor Referendum Act 1916.* On 17th February, 1916, a proclamation was issued, in terms of the War Precautions Act, by the Minister for Defence, ordering that licensed premises be closed at 6 p.m. in the County of Cumberland, and within a radius of 5 miles from any military camp; a week later the closing hour was varied from 6 to 8 p.m. Subsequently the Liquor Referendum Act 1916 was passed in the State Parliament to decide by referendum the hour of closing for premises licensed under the Liquor Act 1912. At the referendum the electors were enabled to record votes in order of preference for each hour from 6 to 11 p.m. inclusively. The count of the first preference votes resulted in a large majority for 6 o'clock, and from 21st July, 1916, all licensed premises and registered clubs in New South Wales have been closed at that hour.

(iii) *Liquor Amendment Act 1919.* This Act, which was assented to on the 23rd December, 1919, provides for the continuance of the six o'clock closing at hotels, and suspends Local Option pending a referendum on the question of prohibition, which must be taken within eighteen months after the passing of the Act. Other clauses provided for the establishment of the Licenses Reduction Board and the Compensation Assessment Board, the former to regulate the number of licenses, to determine the amount of compensation to be paid in cases where cancellations are recommended and to fix compensation fees payable by licensees; and the latter to assess the cost to the State for compensation if prohibition be carried. The referendum provided for in the Act has not yet been taken. Compensation is made from a fund into which fees are paid by licensees, the amount being 3 per cent. of the value of liquor purchased during the preceding year. Up to January, 1921, sixteen licenses were withdrawn in the Metropolitan district, and twenty-three in Newcastle district, the respective amounts of compensation being £35,380 and £29,470. The balance of the Compensation Fund on 31st May, 1921, was £185,017.

3. *Victoria.*—The Acts dealing with the subject of local option as to the sale of fermented and spirituous liquors, and with the compulsory closing of hotels in this State, are the Licensing Act 1915, No. 2683, and the Licensing Act 1916, No. 2855.

Part XIII. of the Act of 1915 relates to the subject of local option. Under this Part the local option provisions were to come into operation at the first general election subsequent to 1st January, 1917. The 1916 Act provided that the first local option polls were not to be held till the second general election following on the above date. In the meantime, the Licenses Reduction Board, which by the same Act was constituted the Licensing Court for the whole State, was empowered to continue the work of closing hotels, which it has carried out since 1906.

The provision of a statutory number of hotels for each licensing district disappeared with the old conditions relating to closing, Part XIII. providing that the number of licenses of the different descriptions existing on 1st January, 1917, should not thereafter be exceeded. The Court, up to the election on 21st October, 1920, was authorized to close hotels in any licensing district, as if resolution B (Reduction), under the local option provisions, had been carried in each district. This allows of a reduction proportionate

to the existing number, the maximum closing not to exceed one-fourth. Power has also been given to accept the surrender of any victualler's license irrespective of the number otherwise closed. A greater number must not be closed than can be compensated, and the old limitation, that hotels licensed after 1886 were not entitled to compensation, has been removed.

(i) *The Licenses Reduction Board.* This Board was established by the 1906 Act, with power to reduce the number of licensed victuallers' premises, up to December, 1916, in districts where there were more than the statutory number of licenses. It had also the duty of fixing and awarding compensation to the owners and licensees of the closed hotels. The compensation was provided by an annual percentage fee of 3 per cent. on all liquor purchased by licensed victuallers. The compensation fund obtained in this manner has risen from £48,233 in 1907, to £63,623 in 1915, which was the highest figure reached. In 1916, with the restricted hours of trading, the amount received was £60,396. The licensing fund which was distinct from the compensation fund, was protected by a provision that the remaining hotels, by a *pro rata* assessment, had to make up annually the amount of the license fees lost by the closing of hotels; the license fees for hotels were of varying amounts, based on the annual municipal value of the premises, ranging from £5 to £50, in four classes, viz., £5, £15, £25, £50. By the 1916 Act, this system of fixed fees was abolished, as was also the *pro rata* assessment of lost fees and the 3 per cent. compensation fees. The two funds referred to above were merged into one, and a system of percentage fees was applied to all licenses for the sale of liquor in the State, whether wholesale or retail, and the amount received is paid into one fund. The expenses of operating the Licensing Act are a charge on this fund. In addition, £23,000 is paid annually to the Police Superannuation Fund, and £68,000 to municipalities which formerly granted licenses. The balance, amounting in 1922 to £300,000, is available for compensation to owners and licensees of closed hotels.

All vendors of liquor pay in proportion to the benefit they derive from the license. The amount charged the wholesale trade is 4 per cent. on the cost of all liquors sold to non-licensed persons, no charge being made on sales to other licensed vendors. The retail trade is charged 6 per cent. on liquor purchases, except the holders of Australian wine licenses, who are charged 4 per cent.

The maximum compensation payable is still governed by the trading results and the rents of the years 1903 to 1906, though a concession was made in the Amending Act by which licensees are entitled to be compensated on a three years' tenure, if they are in possession of a lease of that extent when deprived of their license. Under the 1916 Act 424 hotels have been closed and £271,005 awarded as compensation to 387 hotels, there being no claim as to one hotel. The total number of hotels closed up to the 30th June, 1922, was 1,478, and the compensation paid, £811,856 to 1,441 hotels, or an average of £564 per hotel. The following table shews particulars of the operations of the Board and Court up to the 30th June, 1922 :—

VICTORIA.—OPERATIONS OF LICENSES REDUCTION BOARD, 30th JUNE, 1922.

Particulars.	Licenses in December, 1906.		Hotels Deprived of Licenses.	Compensation Awarded.		Hotels Surrendered.	Compensation Awarded.	
	Number in Existence.	Roadside Victuallers.		Owner.	Licensee.		Owner.	Licensee.
				£	£		£	£
Metropolitan and Suburban ..	1,020	..	393	300,297	65,618	(b)19	9,173	2,634
Country ..	2,428	73	719	282,528	46,927	(c)347	93,598	11,081
Total ..	3,448	73	(a)1,112	582,825	112,545	366	102,771	13,715

(a) Including 3 metropolitan and 33 country victuallers' licenses deprived but not awarded compensation.

(b) Including 1 license surrendered but not compensated.

(c) Including 6 roadside licenses.

In addition to the above closings, there have been taken away under the local option vote the following licenses :—1 Australian wine, 1 club, 4 grocers', and 5 spirit merchants'.

(ii) *Early Closing of Hotels.* Consequent on the war, an Act (No. 2584) was passed and came into operation on 6th July, 1915, restricting the hours for the sale of intoxicating liquors, the restriction being limited to the duration of the war. Sale was permitted only between the hours of 9 a.m. and 9.30 p.m. By a subsequent Act (No. 2776), tenants of licensed premises were given the right to apply to the Licenses Reduction Board to adjust the rents of their premises. Four hundred licensees took advantage of this provision. The hours of trading in the evening were further restricted as from 25th October, 1916—six o'clock being fixed as the time of closing. These hours were made permanent by the 1919 Act.

The provisions of the Rent Adjustment Act were extended so as to enable the Board to deal with applications for reductions of rent arising from fresh restrictions. Between 300 and 400 additional applications were received, the amounts involved being substantial.

Special provision was made in the 1916 Act for the granting of victuallers' licenses in the Mallee. Power was given to proclaim areas containing 500 resident electors, when petitions signed by a majority of the residents were lodged, and where the Licensing Court, after inquiry, recommended this course.

On the proclamation of an area, a poll of the electors is to be taken at which, if the poll is to be recognised, one-third of those enrolled must vote. A majority of those voting decides whether a license is to issue or not. Hotels must be at least twelve miles apart, except at Mildura, where special provision is made for the issue of three licenses. Under these provisions eight areas have been proclaimed, in six of which polls were taken and resulted in favour of license. Licenses have now been granted at Mildura (two), Murrayville, Ouyen, Manangatang, and Ultima.

The first local option poll under Part XIII. of the 1915 Act was held at the General Election on 21st October, 1920. In one of the licensing districts—Peechelba—there are no licenses. In the 216 remaining licensing districts the result was as follows:—Continuance, 143; Reduction, 71; No License, 2. The total votes for each resolution were Continuance, 278,707; Reduction, 36,025; No License, 212,254.

4. *Queensland.*—The local option clauses of the Liquor Acts of 1912–1914 provide for the following:—

- (i) The conditions under which new licenses may be granted until the completion of the business of the Licensing Court in April, 1916.
- (ii) The continuance of the local option clauses of the Licensing Act of 1885 until the 31st December, 1916.
- (iii) The institution of a new scheme, under which electors from and after the year 1917 will have the opportunity of voting every three years on the question of reduction or increase of licenses.

(i) *New Licenses.* With regard to the granting of "new licenses" from the 1st April, 1913, and until the completion of the business of the Licensing Court in April, 1916, it was provided that no new licensed victualler's or wine seller's or provisional licenses should be granted, unless at a local option vote of the electors of the local option area in which the premises or proposed premises are situated a resolution "that new licenses shall be granted in this local option area" were carried.

If the resolution were carried, the Court might, but need not, grant applications; but if the resolution were not carried, the Court might not grant any application during the said years in the said local option areas.

The Acts of 1912 and 1914 provided that a local option vote following on an application for a license might be taken in any of the years 1913, 1914, 1915, and 1916 in a local option area, but having been taken once should not be taken again during those years in the same local option area. During 1913 a vote was taken in ten districts on the resolution "that new licenses be granted." In five of these the resolution was carried, the other five districts declaring against any increase in the number of licenses. In 1914, sixteen districts voted on the same resolution, in eleven of which it was carried, while in 1915, sixteen districts also voted, the resolution being carried in ten cases.

(ii) *Continuance of Present System until 1917.* With the exception of the third resolution, viz., "that no new licenses be granted," the local option provisions of the Licensing Act of 1885 remained in full force and effect until the 31st December, 1916, with certain modifications and additions. These will be found fully described in previous issues of the Year Book (see No. 6, p. 1177).

(iii) *General Local Option.* The first vote might be taken in the year 1917, either on the same day as the election of senators, or if no Senate election were held in 1917 before the 30th September, then on a day to be appointed by the Governor-in-Council.

The vote should be taken on the request of one-tenth of the number of electors in an area, which was defined in the request, and such area might be:—(a) an electoral district, (b) an electoral division of an electoral district, or (c) a group of two or more divisions of an electoral district, provided that the whole of such local option area were wholly comprised within one and the same electoral district.

There should be a separate request for each resolution on which a vote was required to be taken.

The resolutions on which a vote might be taken were:—(a) reduction by one-fourth of the existing number, (b) further reduction by one-fourth of the existing number, (c) further reduction by one-fourth of the existing number, (d) prohibition, and (e) new licenses.

On the 5th May, 1917, 57 polls were taken, 55 being on the question of reduction and two being on the question of increase. Reduction was carried in only four local option areas. The total number of licenses which ceased to exist as from 1st January, 1920, was 17. Increase was carried in two areas.

In previous issues of the Year Book (see No. 6, p. 1178) will be found fuller reference to the effect of the carrying of any of the resolutions.

On the 13th December, 1919 twelve polls were taken, eleven being on the question of increase or new licenses and one on the question of reduction of licenses. Increase was carried in five local option areas, but in two of these a sufficient number of electors did not vote, 35 per cent. being required under Section 175 of the Liquor Acts. The poll in one area resulted in a majority against reduction.

The Liquor Act Amendment Act of 1920 provides that every local option vote must be taken in the month of May in every third year, on a day to be fixed by the Governor in Council, but no vote may be taken on the same day as the State General Election or a Commonwealth General or Senate Election. Requests for the next local option vote in May, 1923, must be received by the Home Secretary on or before the 30th November, 1922.

(iv) *State Option, Prohibition, and Continuance of Present System.* The Liquor Act Amendment Act of 1920 provides for triennial polls throughout the State on the following resolutions:—

- (a) State management of manufacture, importation, and sale of fermented and spirituous liquors.
- (b) Prohibition of manufacture, importation, and retail of fermented and spirituous liquors to take effect from 1st July, 1925, in case of the poll in 1920 or 1923, and for subsequent polls from 1st July in the third year after the carriage of resolution (b).
- (c) Continuance of the present (or if (a) or (b) has been carried—return to the earlier) system of manufacture, importation and retail of fermented and spirituous liquors.

The first poll under this provision was held on 30th October, 1920, that date having been fixed by the Governor in Council. Voting was compulsory under a compulsory preferential system. State management was everywhere defeated. In 14 areas majorities were recorded for (b); and in 58 areas continuance was carried with a majority for the whole State of 38,092 votes.

5. *South Australia.*—In this State the subject of local option is now regulated by Part VIII. of the Licensing Act 1917.

Under this Act, each electoral district for the House of Assembly is constituted a local option district, and each electoral district may be divided into local option districts by proclamation of the Governor. A quorum consisting of 500 electors, or one-tenth of the total number of electors, whichever be the smaller number, in any district may

petition to the Governor for a local option poll. The persons entitled to vote at the poll are those whose names appear on the electoral roll and who reside in the local option district.

The resolutions to be submitted, together with the effects such resolutions would have, are set out in detail in previous issues of the Year Book (see No. 6, p. 1179).

(i) *Local Option Poll.* On the 2nd April, 1910, local option polls were taken under the Act of 1908 in twenty-four districts; the electors in the remaining nine local option districts did not petition for polls. A resolution that the number of licenses be reduced was carried in only one district; in the remaining twenty-three districts a resolution that the number of licenses be not increased or reduced was carried. At the general election of the House of Assembly, held on the 10th February, 1912, no local option polls were held in any local option district. On the 27th March, 1915 (the same day as the Parliamentary elections), a local option poll was taken in the Flinders Southern (Port Lincoln) local option district, when the resolution "that the number of licenses be not increased or reduced" was carried. There have been no further polls in any of the districts up to the end of 1921.

(ii) *Early Closing of Hotels.* On the 27th March, 1915, a referendum was held as to the hour for the closing of bar-rooms in licensed premises. Out of a total of 178,362 votes cast, 100,418 were cast in favour of closing bar-rooms at 6 p.m., those in favour of closing at 11 p.m. being 61,362. Electors had the choice of voting for hours other than the two mentioned, but the votes so cast were comparatively few. No polls have since been taken.

(iii) *Re-proclamation of Districts.* Local option districts were re-proclaimed on the 29th November, 1917, the districts, which number thirty-five, being given in the *Government Gazette* of the same date.

6. *Western Australia.*—The law relating to local option in Western Australia is contained in Part V. (sections 75 to 86) of the Licensing Act 1911, which was assented to on 16th February, 1911, and came into force on the 7th April following. Prior to the passing of this Act there was no provision for any system of local option in Western Australia.

The resolutions to be submitted under the above-mentioned Act and the effect such resolutions would have, are given in detail in previous issues of the Year Book (see No. 6, p. 1180).

The first vote under the Act of 1911 was a limited poll, taken on 26th April, 1911, the main question being confined (as prescribed by the Act when the vote is taken prior to 1920) to a resolution "that the number of licenses be increased," the only other questions submitted being those of State control of new publicans' general licenses and State management throughout all licensing districts. Only one district voted for increase and there were majorities for State control and State holding of all new publicans' general licenses. On 30th April, 1921, the first full poll was taken, and in accordance with the provisions of the Act the four main questions were Continuance, Increase, Reduction, or No License. The resolutions for Continuance, Reduction, or Increase were carried if a majority in the number of votes cast was in favour of any of those resolutions. No License, however, was not carried unless three-fifths of the votes cast were in favour thereof and moreover 30 per cent. of the electors in the district had voted for the resolution. Where resolution D (No License) was not carried the votes in favour of it were to be added to the votes for resolution C (Reduction); and similarly where resolution B (Increase) was not carried the votes in favour of it were to be added to those for resolution A (Continuance). For the purpose of the poll the State was divided into Licensing Districts which to all intents and purposes, with a few exceptions, coincided with the equivalent Electoral Districts, the Assembly Electoral Rolls being utilized.

In no district was No License carried with a sufficient majority and in no district was Increase passed. The final result, after adding the votes for Increase and No License to the votes for Continuance and Reduction respectively as shewn above, was that 10 districts voted for Reduction and 32 for Continuance. The results where Continuance was carried are negative, no action being required. Where Reduction was carried the licenses in existence continue till the end of the current year, and during that period the Licensing Courts must reduce the number of licenses according to the rates set out in the Licensing Act. This provides that there must be a reduction of one license, and there may, in the discretion of the Court, be a reduction of a quarter of the number in the

district. The Act further provides that if the number of licenses in the districts exceeds 12 the number must be reduced by at least 2; and if the number exceeds 24, but is less than 36, by at least 3; and if the number is 36 or over by at least 4. This provision, however, does not affect the general discretion given to the Bench to reduce to three-fourths.

The licenses to which local option applied are Publicans' General Licenses, Hotel Licenses, Wayside House Licenses, Australian Wine and Beer Licenses, and Australian Wine Licenses; and in dealing with the question of reduction the word "license" is used in a collective sense, and it is in the discretion of the Bench whether the reduced license will be a Publican's General License or any of the others mentioned above. In coming to its determination the Bench has to classify the licenses, considering in the first place the convenience of the public and the requirements of the district, and then taking into consideration the number of offences against the licensing laws of which licensees have been guilty and the general conduct of their houses. The result of the poll (the first full poll) was:—

RESULT OF LOCAL OPTION POLL, 30th APRIL, 1921.

Continuance. A.	Increase. B.	Reduction. C.	Prohibition. D.	Do you vote that all new Publicans' General Licenses be held by the State?		Are you in favour of State Management throughout all Licensing Districts?	
				Yes.	No.	Yes.	No.
37,710	2,165	5,940	32,302	30,154	24,377	28,915	24,938
39,875		38,242					

At the Licensing Courts held in December, 1921, the result of the poll was, where necessary, duly carried out.

During the last session of Parliament a Bill dealing with the question of local option was considered and the matter was referred to a Select Committee. The end of the session approaching, however, before the Committee had completed its labours the *personnel* thereof was appointed a Royal Commission to fully consider the matter and report to the Governor in due course. The Royal Commission in question is at present continuing its inquiries.

7. *Tasmania*.—In this State the subject of local option is dealt with in Part VI. (sections 72 to 84) of the Licensing Act 1902, as subsequently amended by section 8 of the Licensing Act 1908, which later Act, however, did not come into full operation until the first of January, 1917. Other Acts which formerly dealt with the subject, but are now repealed, are the Licensing Acts 1889–1890, the Innkeepers Relief Act 1894, and the Licensing Act Amendment Act 1898. Under the Act of 1902, opposition to the grant of a license may be made (i) by any resident ratepayer, (ii) by petition of ratepayers resident in the neighbourhood, or (iii) by local option poll.

The conditions under which applications may be made to the Licensing Bench opposing the granting of licenses, are set out in detail in previous issues of the Year Book. (See No. 6, p. 1181.)

(i) *Local Option Poll*. Any number of ratepayers not less than seven, resident in the neighbourhood of the house in respect of which a certificate for a hotel license has been applied for, may require, by petition lodged with the Clerk of Petty Sessions, that a poll of the ratepayers resident in the neighbourhood be taken upon the question whether such certificate be granted or not. If a majority of the votes taken be against the granting of the certificate the Licensing Bench must refuse to grant it.

An application refused is not to be renewed within three years.

(ii) *Early Closing of Licensed Premises*. A referendum on the question of the closing time for the sale and supply of liquor on licensed premises (6 Geo. V., No. 63) was taken on the 25th March, 1916, when 42,713 votes were cast in favour of closing at six o'clock p.m., against 26,153 votes in favour of ten o'clock, and 3,951 votes for other hours. The majority in favour of closing at six o'clock over all other hours was 12,609, and the Licensing Act (No. 2) of 1916 gives effect to the wishes of the electors.

§ 8. Valuation of Commonwealth Production.

1. **Value of Production.**—The want of uniformity in methods of compilation and presentation of Australian statistics renders it an extremely difficult task to make anything like a satisfactory valuation of the various elements of production. At present there is so little accurate statistical knowledge regarding such industries as forestry, fisheries, poultry, and bee-farming, that any valuation of the production therefrom can only be regarded as the roughest approximation. As a matter of fact, complete information as to value of production in all States is available in regard to the mining industry alone, and even in this case adjustments have to be made before the returns are strictly comparable. Careful estimates have been made in connexion with the value of production from the agricultural and pastoral industries, which, it is believed, in the main give fairly accurate results. In the case of manufactories, prior to 1909, five of the States collected statistics of the value of production, while for the sixth State, Tasmania, an estimate has been prepared which it is believed gives a fair approximation. The returns given in the following table are fuller and more approximate than those which have been given previously, and the figures furnished for 1910 and subsequent years may be taken as substantially correct. The table hereunder shews the approximate value of the production from all industries during the years 1910 to 1920-21 :—

ESTIMATED VALUE OF PRODUCTION FROM INDUSTRIES, 1910 TO 1920-21.

Year.	Agriculture.	Pastoral.	Dairy, Poultry, and Bee-farming.	Forestry and Fisheries.	Mining.	Manufacturing (a)	Total.
	£1,000.	£1,000.	£1,000.	£1,000.	£1,000.	£1,000.	£1,000.
1910 ..	39,752	56,993	17,387	4,789	23,222	45,598	187,741
1911 ..	38,774	50,725	19,107	5,728	23,494	50,767	188,595
1912 ..	45,754	51,815	20,280	6,432	25,645	57,022	206,748
1913 ..	46,162	57,866	20,341	6,338	25,810	61,586	218,103
1914 ..	36,052	60,265	21,562	6,419	22,275	62,922	209,495
1915 ..	73,769	65,607	21,156	5,777	22,428	62,883	251,620
1916 ..	60,207	89,939	26,949	5,505	23,606	64,205	270,411
1917 ..	57,967	93,435	31,326	5,523	25,581	69,797	283,629
1918 ..	58,080	98,297	33,738	7,137	26,156	75,261	298,669
1919-20 ..	72,234	109,062	38,830	10,170	19,725	98,162	348,183
1920-21 ..	112,796	93,824	52,613	10,490	22,457	110,028	402,208

(a) These amounts differ from those given in Section XIII., Manufacturing Industries, owing to certain products which are there included having been included in Dairy Farming and Forestry in this table.

2. **Relative Productive Activity.**—The relative output or production per head of population measured quantitatively cannot be gauged from a mere statement of the total value of production from year to year. If measured by mere value, increase of price would have the effect of making an equal production with that of a time when prices were lower, and shew an increase which would, of course, be misleading. For example, the annual figures shewing the estimated value of production from the Commonwealth industries do not directly shew whether there has been any increase in the *quantity* produced, since the price-level at the time is itself a factor in the determination of the values. Before, therefore, any estimate of the relative increase or decrease in production (that is, in the relative quantity of output) can be formed, the variations due to the price element must be eliminated. This is done in the following table, in which Column I. shews the estimated *value* of production (i) in the aggregate and (ii) per head of mean population. In Column II. the estimated value of production per head of population is shewn in the form of index-numbers with the year 1911 as base; that is to say, the production per head in 1911 is made equal to 1,000, and the values for the other years computed accordingly. In Column III. wholesale and production price index-numbers are given; it is assumed that these index-numbers reflect, with substantial accuracy, variations in wholesale and production prices in the Commonwealth as a whole. The figures in Column IV. are

obtained by dividing the figures for each year in Column II. by the corresponding figures in Column III. They shew the estimated relative productive activity per head of population, taking the year 1911 as the basic or standard year, the fluctuations due to variation in prices having been eliminated.

ESTIMATED RELATIVE PRODUCTIVE ACTIVITY IN COMMONWEALTH FOR THE YEARS 1871 TO 1920-21.

Year.	I.		II.	III.		IV.	
	Estimated Value of Production.		Relative Value of Production per Head (Year 1911 = 1,000).	(a)	(b)	Estimated Relative Productive Activity Index-Numbers (Year 1911 = 1,000).	
	(i) Total. (000 omitted)	(ii) Per Head of Population.		Wholesale Price Index-Number (Year 1911 = 1,000).	Production Price Index-Number (Year 1911 = 1,000).	(a)	(b)
	£	£					
1871 ..	46,700	27.46	666	1,229	..	542	..
1881 ..	71,116	30.83	748	1,121	..	667	..
1891 ..	96,087	29.65	719	945	..	761	..
1892 ..	95,244	28.81	699	918	..	761	..
1894 ..	83,773	24.45	593	749	..	792	..
1896 ..	92,605	26.06	632	922	..	685	..
1899 ..	112,273	30.21	733	809	..	906	..
1901 ..	114,585	29.96	727	974	..	746	..
1902 ..	109,615	28.29	686	1,051	..	653	..
1903 ..	117,672	30.04	729	1,049	..	695	..
1904 ..	122,343	30.78	747	890	..	839	..
1905 ..	135,846	33.68	817	910	..	898	..
1906 ..	147,043	35.94	872	948	..	920	..
1907 ..	166,042	39.90	968	1,021	..	948	..
1908 ..	164,934	38.97	945	1,115	1,073	848	880
1909 ..	174,195	40.29	977	993	1,000	984	977
1910 ..	187,741	42.43	1,029	1,003	969	1,026	1,062
1911 ..	188,595	41.23	1,000	1,000	1,000	1,000	1,000
1912 ..	206,748	43.56	1,057	1,170	1,108	903	954
1913 ..	218,103	44.56	1,081	1,088	1,050	994	1,030
1914 ..	209,495	42.13	1,022	1,149	1,266	889	807
1915 ..	251,620	50.63	1,228	1,604	1,425	766	862
1916 ..	270,411	54.98	1,333	1,504	1,498	886	890
1917 ..	283,629	56.92	1,381	1,662	1,605	831	860
1918 ..	298,669	58.77	1,425	1,934	1,765	737	807
1919-20 ..	348,183	65.64	1,592	2,312	2,110	689	755
1920-21 ..	402,298	74.31	1,802	2,266	2,091	795	862

(a) Relative Production computed by application of Wholesale Price Index-numbers. (b) Index-numbers computed by application of Production Price Index-numbers.

The total production from all industries during 1920-21 was £402,208,000, equal to an average of £74.31 per inhabitant.

In Year Book No. 5 (page 1217) will be found the value of production in each State at decennial intervals since 1871, and for the year 1909. Details for individual States are not available for subsequent years owing to discontinuance by the Customs Department of the collection of statistics of interstate trade.

§ 9. Lord Howe Island.

1. **Area, Location, etc.**—Between Norfolk Island and the Australian coast is Lord Howe Island, in latitude 31° 30' south, longitude 159° 5' east. It was discovered in 1788. The total area is 3,220 acres, the island being seven miles in length and from one-half to one and three-quarter miles in width. It is distant 436 miles from Sydney, and in communication therewith by monthly steam service. The flora is varied and the vegetation luxuriant, with shady forests, principally of palms and banyans. The highest

point is Mount Gower, 2,840 feet. The climate is mild and the rainfall abundant, but on account of the rocky formation only about a tenth of the surface is suitable for cultivation.

2. **Settlement.**—The first settlement was by a small Maori party in 1853; afterwards a colony was settled from Sydney. Constitutionally, it is a dependency of New South Wales, and is included in the electorate of Sydney. A Board of Control manages the affairs of the island and supervises the palm seed industry referred to hereunder.

3. **Population.**—The population at the Census of 3rd April, 1921, was 65 males, 46 females—total 111.

4. **Production, Trade, etc.**—The principal product is the seed of the native or *Kentia* palm. The lands belong to the Crown. The occupants pay no rent, and are tenants on sufferance.

§ 10. Commonwealth Institute of Science and Industry.

1. **General.**—An account of the origin of the temporary Institute was given in Official Year Book No. 9, pp. 1135-8, while the progress of its activities has been outlined in succeeding issues.

The "Institute of Science and Industry Act 1920." assented to 14th September, 1920, provides for the establishment of the Institute on a permanent basis.

The Act also provides that the Institute shall establish (a) a Bureau of Agriculture, (b) a Bureau of Industries, and (c) such other Bureaux as the Governor-General determines. Power is given for the establishment of a General Advisory Council and Advisory Boards in each State to advise the Director with regard to—(a) the general business of the Institute or any Bureau thereof, and (b) any particular matter of investigation or research.

The term for which the appointment of Director is made is five years, and any person so appointed shall at the expiration of his term of office be eligible for reappointment. The first director of the permanent Institute is G. H. Knibbs, C.M.G., Hon. F.S.S., M.I.I.S., Hon. M.S.S., Paris, Hon. M. Amer., S.A., etc., etc., formerly Commonwealth Statistician, who was appointed on the 18th March, 1921.

Under the Act the Director shall co-operate, so far as is possible, with existing State organizations in the co-ordination of scientific investigations. The statutory powers and functions of the Director are as follow:—

- (a) the initiation and carrying out of scientific researches in connexion with, or for the promotion of, primary or secondary industries in the Commonwealth;
- (b) the establishment and awarding of industrial research studentships and fellowships;
- (c) the making of grants in aid of pure scientific research;
- (d) the recognition or establishment of associations of persons engaged in any industry or industries for the purpose of carrying out industrial scientific research and the co-operation with and the making of grants to such associations when recognised or established;
- (e) the testing and standardization of scientific apparatus and instruments, and of apparatus, machinery, materials and instruments used in industry.
- (f) the establishment of a Bureau of Information for the collection and dissemination of information relating to scientific and technical matters; and
- (g) the collection and dissemination of information regarding industrial welfare and questions relating to the improvement of industrial conditions.

2. **Work of the Institute.**—The Institute has made investigations into various matters of importance to the Commonwealth, and has issued a number of bulletins and pamphlets. The more important subjects which have been or are at present under consideration are as follow :—

- A. Agricultural and Pastoral Industries.* (i) Cattle Tick Pest, (ii) Worm Nodule Disease, (iii) Tuberculosis in Stock, (iv) Sheep Blow Fly, (v) White Ant Pest, (vi) Prickly Pear, (vii) Seed Improvement, (viii) Native Grasses and Fodder Plants, (ix) Viticultural Problems, (x) Castor Beans, (xi) Sorghum.
- B. Forest and Vegetable Products.* (i) Paper Pulp, (ii) Tanning Materials, (iii) Zamia Palms, (iv) Grass Tree Resin, (v) Western Australian Sandalwood, (vi) Preservation of Timbers.
- C. Manufacturing Industries.* (i) Leather and Tanning, (ii) Pottery, (iii) Power Alcohol, (iv) Posidonia Fibre, (v) Engineering Standardisation.
- D. Mining and Metallurgy.* (i) Mode of Occurrence of Gold, (ii) Ferro-alloys, (iii) Alunite.
- E. Miscellaneous.* (i) Road-making Materials, etc., (ii) Weights and Measures, (iii) Leather, (iv) St. John's Wort.

In addition to these investigations, the nucleus of a Bureau of Information has been established, with a library of scientific books and journals catalogued and indexed. Information is also furnished to Commonwealth and State Government Departments, institutions and organizations, companies, firms, and private individuals on scientific and technical matters.

3. **Publications.**—A list of the publications issued up to the 14th March, 1921, is given in Year Book No. 14, p. 1063, since which date pamphlets have been issued on "A Classification and Detailed Description of the Barleys of Australia" and on "Australian Standard Specifications for Railway Rails and Fishplates." The publication of "Science and Industry," the Journal of the Institute, has been suspended since the end of 1920.

§ 11. Department of Chemistry, South Australia.

In South Australia, a Department of Chemistry was formed in 1915. The Department is principally engaged in general routine chemical examinations and analyses in pursuance of various Acts of Parliament and for Government Departments, but the chemical investigation of local products and industries forms an important branch of its work. In this connexion a series of Bulletins is in course of preparation. Up to July, 1918, nine Bulletins have been issued, a list of which is given in Year Book No. 14, p. 1064.

Work in connexion with the wheat pest problem was carried out by the Department of Chemistry for the Wheat Weevil Committee, of which the Director of the Department was Chairman. An outline of the results achieved by the Committee is set out in Report No. 2 of the State Advisory Council of Science and Industry of South Australia, 1920. It is estimated that at least £1,500,000 worth of wheat valued at 4s. 9d. per bushel was saved as the direct result of this research work. Recently investigations have been made of the lignites at Moorlands, South Australia. Researches have also been made upon the utilization of grapes for other purposes than making wine, raisins, currants, and sultanas, and upon the utilization of surplus lemons. The results of these researches are published in Reports 1, 2, and 3 of the Advisory Council of Science and Industry of South Australia, 1919, 1920, and 1921.

§ 12. Animal and Vegetable Diseases and Pests.

1. **General.**—A Conspectus of Acts and Regulations in force in the various States of the Commonwealth, relating to noxious animals and weeds, means of preventing or mitigating their ravages, restriction on introduction from overseas of disease-carrying animals and plants, quarantining and eradication of infected organisms, etc., will be found in Year Book No. 14, pp. 1066 to 1119.

§ 13. Weights and Measures.

1. **General.**—A Conspectus of the Acts in force in the various States relating to weights and measures will be found on the following pages.

CONSPECTUS OF ACTS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
(i) Acts in Force ..	Weights and Measures Acts 1915, 1916	Weights and Measures Act 1915	Weights and Measures Acts 1906, 1912
(ii) Administration of Act	Subject to the control of the Minister, the Act is administered by the Superintendent and Inspectors	..	The Governor may appoint a Chief Inspector, Sub-inspectors, Inspectors and other officers for the effectual execution of the Act
(iii) Local Authorities	..	(a) The Council of a Borough or Shire must appoint an Inspector of Weights and Measures for the Borough or Shire or for each of two or more divisions thereof (b) Two or more Councils may form a "Union" for the purposes of the Act	(a) The Governor may proclaim the area of any Local Authority or the areas of two or more Local Authorities to be a District, and may assign any Inspector to any District. (b) If no Inspector is assigned to a District, the nearest Clerk of Petty Sessions acts as such (c) A Local Authority may, and, when required by the Minister must, appoint an Inspector
(iv) Application of the Act to Railways, etc.	The Act applies to all weights, measures and weighing and measuring instruments in use upon any of the railways or tramways or upon any premises vested in the Chief Commissioner for Railways and Tramways	..	The Act extends to all weights, measures, and weighing instruments in use upon any State or other railway or upon any premises vested in the Commissioner for Railways or other railway owner
(v) Standards ..	Specimens of weights and measures of the standard of the United Kingdom of Great Britain and Ireland are the standard weights and measures of the State and are deposited in the Treasury	Primary standards of weights and measures, 1 lb. avoirdupois, and 1 lb. troy made of platinum, 1 gallon made of gunmetal, and 1 yard made of Baily's metal, duly verified and agreeing with those in the Exchequer at Westminster, are kept by the Minister	Standard weights and measures of the United Kingdom of Great Britain and Ireland are deposited in the Treasury
(vi) Departmental Standards	Copies of the standard weights and measures, verified with the standards in the Treasury, and known as "Departmental Standards," are deposited in the office of the Superintendent	..	..
(vii) Local Standards	(a) The Minister must provide such copies of the Departmental Standards as may be necessary, termed "Local Standards" (b) Local Standards are kept by Inspectors (c) A Local Standard of Weight is not legal, nor may be used unless it has been verified within ten years before the time at which it is used	(a) "Authorized Copies" are to be provided, verified, stamped, and marked with a distinguishing mark shewing the Borough, Shire, or Division to which they have been issued (b) The Minister must keep a register of Authorized Copies (c) Authorized Copies are kept by Inspectors and must be verified every fifth year	Copies of standard weights and measures, verified on oath as correct by the Under-Secretary to the Treasury, are to be kept by Inspectors

RELATING TO WEIGHTS AND MEASURES.

South Australia.	Western Australia.	Tasmania.
Weights and Measures Act 1885	Weights and Measures Act 1915 (This Act, which repeals the Act of 1899, has not yet been proclaimed)	Weights and Measures Act 1916, 1920
The Commissioner of Crown Lands has all the powers and performs all the duties relative to Standards, which are vested in or imposed on him by the Act	Subject to the control of the Minister, the Act is administered by the Commissioner of Police, and Inspectors appointed by such Commissioner	Subject to the control of the Minister, the Act is administered by the Chief Inspector of Machinery and Inspectors
(a) A Local Authority must appoint an Inspector for keeping Local Standards and for discharging the duties of an Inspector (b) A Local Authority must fix times and places at which each Inspector is to attend for the purpose of verifying weights and measures		The Hobart City Council and the Municipal Council of the City of Launceston must each appoint a competent person to be an Inspector for its City
	The Commissioner of Police may, by arrangement with the Commissioner of Railways, from time to time examine and test any weighing instrument used on the Government railways	The Act extends to all weights, measures and weighing instruments on any State or other railway or tramway or premises vested in or controlled by the Commissioner for Railways and any other railway or tramway owner
Standard pound weight made of platinum, and 1 yard measure of such material as the Commissioner of Crown Lands thinks best suited, compared with the British Imperial standard yard and certified correct are deposited in the Office of the Surveyor-General	Specimens of weights and measures of the standard of the United Kingdom of Great Britain and Ireland are the standard weights and measures of the State and are deposited in the Treasury	Specimens of weights and measures of the standard of the United Kingdom of Great Britain and Ireland are the standard weights and measures of the State and are deposited in the Treasury
Standard weights and measures are deposited with the Commissioner of Crown Lands	Copies of the standard weights and measures, verified with the standards in the Treasury and known as "Departmental Standards" are deposited in the office of the Commissioner of Police	Copies of the standard weights and measures, verified with the standards in the Treasury and known as "Departmental Standards" are deposited in the office of the Chief Inspector of Machinery
(a) Copies of the standards, verified by the Commissioner of Crown Lands, called "Local Standards" are used by Inspectors (b) The Commissioner of Crown Lands must issue to the Council of every corporate City, Town and District, on application, Local Standards (c) A Local Standard is not deemed legal nor may be used unless verified within five years before the time at which it is used	(a) The Minister must provide such copies of the Departmental Standards as may be necessary, termed "Local Standards" (b) Local Standards are kept by Inspectors (c) A Local Standard of Weight is not legal nor may be used unless it has been verified within ten years before the time at which it is used	(a) A City Council must provide such copies of the Departmental Standards as may be necessary termed "Local Standards" (b) Local Standards are to be kept by Inspectors (c) A Local Standard of Weight is not legal nor may be used unless verified within ten years before the time at which it is used

CONSPECTUS OF ACTS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
(viii) Units of Weight	Standard pound = 16 ounces = 256 drams = 7,000 grains 1 hundredweight = 112 lbs. 1 ton = 20 cwt. 1 ton of flour, bran, sharps, pollard, semolina, wheat-meal or other milled product of wheat = 2,000 lbs. 1 ounce troy or apothecaries = 480 grains	Standard pound avoirdupois = 16 ounces = 256 drams 1 stone = 14 lb. 8 stone = 1 hundredweight 20 cwt. = 1 ton 1 standard pound troy = 12 ounces = 240 pennyweights = 5,760 grains 1 ton of firewood = 40 cubic feet, unless otherwise agreed upon	1 pound avoirdupois or troy 1 stone = 14 lb. avoirdupois 1 hundredweight = 112 lbs. 1 ton = 2,240 lbs. 1 ton of bran, pollard, flour, and broom millet = 2,000 lbs.
(ix) Units of Measure	Standard gallon (equalling 10 lbs. of distilled water at 62° temperature and 30" barometer) = 4 quarts = 8 pints 1 peck = 2 gallons 1 bushel = 8 gallons 1 quarter = 8 bushels	Standard gallon = 4 quarts = 8 pints = 32 gills 1 peck = 2 gallons 1 bushel = 8 gallons 1 quarter of corn or other dry goods = 8 bushels	Gallon
(x) Units of Length	Standard yard = 3 feet = 36 inches 1 rod, pole or perch = 5½ yards 1 chain = 22 yards 1 mile = 1,760 yards 1 rood of land = 1,210 square yards 1 acre = 4,840 square yards = 160 square rods, poles or perches	Standard yard = 3 feet = 36 inches 1 pole or perch = 5½ yards 1 furlong = 220 yards 1 mile = 1,760 yards 1 rood of land = 1,210 square yards 1 acre = 4,840 square yards = 160 square perches, poles or rods	Yard
(xi) Standard Weights of Bushels	(a) 60 lbs. amber cane, beans, Hungarian millet, luphee, planter's friend, peas, rye corn, sorghum, tares or vetches, wheat (seed) (b) 56 lbs. maize (c) 50 lbs. barley, broom corn, buckwheat (d) 40 lbs. oats (e) 20 lbs. peas (in pod) (f) 20 lbs. bran, clover (red or white), grasses (couch, cocksfoot, paspalum, rib, rye), lucerne, pollard, beans (fresh)		(a) 60 lbs. wheat, rye, peas, cow peas, sorghum seed (b) 56 lbs. maize (c) 50 lbs. barley (d) 40 lbs. oats (e) 20 lbs. bran, pollard, grass seed
(xii) Verification and Stamping	(a) Every weight, measure, and weighing or measuring instrument used for trade, not being exempted by Regulation, must be stamped with a mark of verification (b) Special provisions are made for instruments too heavy to be conveniently moved	(a) All weights and measures, except wicker measures or glass or earthenware jugs or drinking cups, must be compared with "Authorized Copies" and stamped before being used (b) An Inspector in charge of "Authorized Copies" must compare and stamp (if found correct, and unless the material or mode of construction appears likely to facilitate fraud) all weights, measures and weighing machines brought to him	(a) All weights and measures must be compared and adjusted with Local Standards by an Inspector and stamped (b) The Governor may direct that in any District every weighing machine be adjusted, verified, and stamped by an Inspector
(xiii) Reverification and Restamping	(a) Every weight, measure and weighing or measuring instrument used for trade, not being a measure made of glass, must be produced at the office of an Inspector and reverified and stamped every two years (b) The Governor may exempt places which are situated more than 20 miles from the office of an Inspector		(a) An Inspector must adjust verify and stamp every weighing instrument, when, in his opinion, it is necessary to do so (b) An Inspector must, on payment of the prescribed fees, compare and adjust with the Local Standards all weights and measures brought to him for the purpose

RELATING TO WEIGHTS AND MEASURES—*continued.*

South Australia.	Western Australia.	Tasmania.
Standard pound = 16 ounces = 256 drams = 7,000 grains 1 stone = 14 lbs. standard 8 stone = 1 hundredweight 20 cwt. = 1 ton 1 ounce troy = 480 grains	Standard pound = 16 ounces = 256 drams = 7,000 grains 1 hundredweight = 112 lbs. 1 ton = 20 cwt. 1 ton of flour, bran, pollard or other milled product of wheat = 2,000 lbs. 1 ounce troy or apothecaries = 480 grains	Standard pound = 16 ounces = 256 drams = 7,000 grains 1 hundredweight = 112 lbs. 1 ton = 20 cwt. 1 ton flour, bran, sharps, pollard, semolina, wheatmeal or other milled product of wheat = 2,000 lbs. 1 ounce troy or apothecaries = 480 grains
Gallon (equalling 10 standard lbs. of distilled water at 62° temperature and 30" barometer) = 4 quarts = 8 pints 1 peck = 2 gallons 1 bushel = 8 gallons 1 quarter = 8 bushels 1 chaldron = 36 bushels	Standard gallon (equalling 10 lbs. of distilled water at 62° temperature and 30" barometer) = 4 quarts = 8 pints 1 peck = 2 gallons 1 bushel = 8 gallons 1 quarter = 8 bushels	Standard gallon (equalling 10 lbs. of distilled water at 62° temperature and 30" barometer) = 4 quarts = 8 pints 1 peck = 2 gallons 1 bushel = 8 gallons 1 quarter = 8 bushels
Standard yard = 3 feet = 36 inches 1 rod, pole or perch = 5½ yards 1 chain = 22 yards 1 furlong = 220 yards 1 mile = 1,760 yards 1 rood of land = 1,210 square yards 1 acre = 4,840 square yards = 160 square rods, poles or perches	Standard yard = 3 feet = 36 inches 1 rod, pole or perch = 5½ yards 1 chain = 22 yards 1 mile = 1,760 yards 1 rood of land = 1,210 square yards 1 acre = 4,840 square yards = 160 square rods, poles or perches	Standard yard = 3 feet = 36 inches 1 rod, pole or perch = 5½ yards 1 chain = 22 yards 1 mile = 1,760 yards 1 rood of land = 1,210 square yards 1 acre = 4,840 square yards = 160 square rods, poles or perches
<p>(a) All weights and measures must be stamped by an Inspector</p> <p>(b) An Inspector must examine and compare with Standard weights and measures all weights and measures brought to him, and, if correct, stamp them</p>	<p>(a) 60 lbs. amber cane, beans, Hungarian millet, impee, planter's friend, peas, rye corn, sorghum, tares or vetches, wheat</p> <p>(b) 56 lbs. maize</p> <p>(c) 50 lbs. barley, broom corn, buckwheat</p> <p>(d) 40 lbs. oats</p> <p>(e) 20 lbs. bran, clover (red or or white), grasses (couch, cocksfoot, paspalum, rib, rye), lucerne, pollard</p> <p>(a) Every weight, measure and weighing or measuring instrument used for trade, not being exempted by regulation, must be stamped with a mark of verification</p> <p>(b) Special provisions are made for instruments too heavy to be conveniently moved</p>	<p>(a) 60 lbs. amber cane, beans, Hungarian millet, impee, planter's friend, peas, rye corn, sorghum, tares or vetches, wheat</p> <p>(b) 56 lbs. maize</p> <p>(c) 50 lbs. barley, broom corn, buckwheat</p> <p>(d) 40 lbs. oats</p> <p>(e) 20 lbs. bran, clover (red or or white), grasses (couch, cocksfoot, paspalum, rib, rye), lucerne, pollard</p> <p>(a) Every weight, measure and weighing or measuring instrument used for trade, not being exempted by regulation, must be stamped with a mark of verification</p> <p>(b) Special provisions are made for instruments too heavy to be conveniently moved</p>
<p>(a) Every weight, measure and weighing or measuring instrument used for trade, not being a measure made of glass, must be produced to the office of an Inspector and reverified and stamped every two years</p> <p>(b) The Governor may exempt places which are situated more than 20 miles from the office of an Inspector</p>	<p>(a) Every weight, measure and weighing or measuring instrument used for trade, not being a measure made of glass, must be produced to the office of an Inspector and reverified and stamped every two years</p> <p>(b) The Governor may exempt places which are situated more than 20 miles from the office of an Inspector</p>	<p>(a) Every weight, measure and weighing or measuring instrument used for trade, not being a measure made of glass, must be produced to an Inspector and reverified and stamped every two years</p> <p>(b) The Governor may modify this provision where it would be unreasonable to insist on compliance therewith</p>

CONSPECTUS OF ACTS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
(xiv) Powers of Inspectors	<p>An Inspector may at all reasonable times—</p> <p>(a) enter any building or place or stop and inspect any vehicle in connexion with which weights, measures or weighing or measuring instruments are used for trade; and</p> <p>(b) inspect any weights, measures or weighing instruments in the possession of any person having any receptacle containing articles for sale; and</p> <p>(c) examine and test all such weights, measures and weighing instruments</p>	<p>(a) An Inspector may—</p> <p>(i) demand a delivery ticket or weight ticket for coal or firewood and retain same if incorrect; and</p> <p>(ii) enter any building or place where coal or firewood is kept for sale and stop any vehicle carrying the same, test the weights and weighing machines and weigh or measure any load of same</p> <p>(This provision applies only to cities and towns, but may be extended to other places by proclamation)</p> <p>(b) A Justice or Inspector may enter any premises where goods are kept for sale and examine all weights measures and weighing machines and compare them with the standards</p>	<p>An Inspector may, at all reasonable times, enter any premises, place or vehicle and inspect all weights, measures and weighing instruments and compare them with the local standards</p>
(xv) Seizure of Unjust Weights, etc.	<p>Any Inspector may seize any weight, measure or weighing or measuring machine which is not stamped or which is incorrect or unjust</p>	<p>Any Justice or Inspector may seize and forfeit—</p> <p>(a) light or unjust weights or measures and incorrect or imperfect machines; or</p> <p>(b) weights made of lead or pewter or a mixture thereof or with forged stamps</p>	<p>Light or unjust weights or incorrect or unjust measures or unjust weighing machines may be seized by an Inspector and forfeited</p>
(xvi) Restrictions on "Cased" Weights	<p>Cased weights must not be stamped</p>	<p>No weight made of lead or pewter or of any mixture thereof may be stamped or used unless wholly cased with brass, copper or iron and stamped "Cased"</p>	<p>No weight made of lead or pewter or mixture thereof or of china or earthenware may be stamped or used unless the former be cased wholly and substantially with brass, copper or iron and stamped "Cased"</p>
(xvii) Restrictions on Sale of Goods	<p>No person may sell or buy by any denomination of weight or measure, except by standard weights and measures or multiples thereof, otherwise the sale is void, except in cases of importation or exportation from a country where other standards are used</p>	<p>All contracts, bargains, sales and dealings which are made or for work done or for goods sold or delivered by weight or measure must be made according to standard weights and measures or some multiple or part thereof</p>	<p>All maize, wheat, rye, barley, oats, bran, pollard, peas, cow peas, grass seed and sorghum seed must be sold by standard weight, and not by measure, otherwise the sale is null and void</p>
(xviii) Sales by Avoirdupois Weight	<p>All articles sold by weight must be sold by avoirdupois weight, except—</p> <p>(a) gold, silver and articles made thereof. Platinum and other precious metals may be sold by the ounce troy or decimal part thereof or by pennyweights and grains</p> <p>(b) diamonds and other precious stones by the metric carat or decimal part thereof</p> <p>(c) drugs, sold by retail, by apothecaries weight</p>	<p>(a) Gold, silver, platinum, diamonds and other precious stones, but no other articles, may be sold by troy weight</p> <p>(b) Drugs, when sold by retail, may be sold by apothecaries weight</p>	<p>All articles sold by weight must be sold by avoirdupois weight, except gold, silver, platinum and diamonds and other precious stones, which must be sold by troy weight, and drugs, which, when sold retail, may be sold by apothecaries weight</p>

RELATING TO WEIGHTS AND MEASURES—*continued.*

South Australia.	Western Australia.	Tasmania.
<p>An Inspector authorized by a Justice of the Peace and any Justice of the Peace may, at all reasonable times, enter any building or place and inspect any weights, measures and weighing machines and compare them with local standards</p>	<p>An Inspector may at all reasonable times— (a) enter any building or place or stop and inspect any vehicle in connexion with which weights, measures or weighing or measuring instruments are used for trade; and (b) inspect any weights, measures or weighing instruments in the possession of any person having any receptacle containing articles for sale; and (c) examine and test all such weights, measures and weighing instruments</p>	<p>An Inspector may at all reasonable times— (a) enter any building or place or stop and inspect any vehicle in connexion with which weights, measures or weighing or measuring instruments are used for trade; and (b) inspect any weights, measures or weighing instruments in the possession of any person having any receptacle containing articles for sale; and (c) examine and test all such weights, measures and weighing instruments</p>
<p>An Inspector authorized by a Justice of the Peace or a Justice of the Peace may seize and detain any weight, measure or weighing machine which is liable to be forfeited in pursuance of the Act</p>	<p>Any Inspector may seize any weight, measure or weighing or measuring machine which is not stamped or which is incorrect or unjust</p>	<p>Any Inspector may seize any weight, measure or weighing or measuring machine which is not stamped or which is incorrect or unjust</p>
<p>No weight made of lead or pewter or of any mixture thereof may be stamped or used unless wholly and substantially cased with brass, copper or iron and marked "Cased"</p>	<p>..</p>	<p>..</p>
<p>(a) All sales and dealings must be made according to standard weights or measures or to some multiple part thereof, otherwise they are void (a) Neither local or customary measures nor the use of the heaped measure are lawful</p>	<p>No person may sell or buy by any denomination of weight or measure except by standard weights and measures or multiples thereof, otherwise the sale is void, except in cases of importation or exportation from a country where other standards are used</p>	<p>No person may sell or buy by any denomination of weight or measure except by standard weights and measures or multiples thereof, otherwise the sale is void, except in cases of importation or exportation from a country where other standards are used</p>
<p>All articles sold by weight must be sold by avoirdupois weight, except— (a) gold and silver and articles made thereof, including gold and silver thread, lace or fringe, also platinum, diamonds and other precious metals may be sold by the ounce troy or decimal parts thereof (b) drugs, when sold by retail, may be sold by apothecaries weight</p>	<p>All articles sold by weight must be sold by avoirdupois weight, except— (a) gold, silver, and articles made thereof, platinum and other precious metals may be sold by the ounce troy or decimal part thereof, or by pennyweights and grains (b) diamonds and other precious stones by the metric carat or decimal part thereof (c) drugs, sold by retail, by apothecaries weight</p>	<p>All articles sold by weight must be sold by avoirdupois weight, except— (a) gold, silver and articles made thereof, platinum and other precious metals may be sold by the ounce troy or decimal part thereof, or by pennyweights and grains (b) diamonds and other precious stones by the metric carat or decimal part thereof (c) drugs, sold by retail, by apothecaries weight</p>

CONSPECTUS OF ACTS IN FORCE

Particulars.	New South Wales.	Victoria.	Queensland.
(xix) Sale of Coal and Firewood	Coal and firewood must be sold by weight, provided that in cases exceeding 5 cwt., it may be sold otherwise with the purchaser's consent, which must be produced to an Inspector on demand. (Only applies within the Metropolitan and Parramatta Police and other proclaimed Districts)	(a) Coal must be sold by weight (b) Firewood must be sold by weight, except when sold in quantities exceeding 10 cubic feet or less than 5 cwt. (c) When coal or firewood are sold, the correct weight or measure must be stated on a ticket which must be handed to the purchaser (Only applies to cities and towns and proclaimed places)	..
(xx) Sale of Goods in Packages	Articles sold or exposed for sale by retail enclosed in packages must have the net weight or measure printed or written on the outside of the package or upon a label firmly attached thereto	..	..
(xxi) Inspection of Articles in Packages	An Inspector may at all reasonable times enter any building or place and stop and inspect any vehicle and inspect any receptacle and any article therein for sale in a package, and weigh or measure it in the presence of the person in charge, and seize any article contravening the Act	..	..
(xxii) Penalties	(a) Falsifying, injuring or destroying a standard, not exceeding £100 (b) Offence against the Act, first offence, not exceeding £20, subsequent offences, where committed with intent to defraud, in lieu of or in addition to fine, imprisonment up to three months	(a) Falsifying standard weights or measures, not exceeding £50 (b) Inspector failing to compare weights, etc., brought to him, person having false weights, using unlawful weights, not exceeding £10 (c) Counterfeiting marks, not exceeding £100 (d) Wilful fraud, first offence not exceeding £5, second not exceeding £10, subsequent imprisonment up to six months	(a) Possessing or using unjust weights or measures or weighing machine, not exceeding £10 in case of avoirdupois, £50 in case of troy weights (b) Using unstamped weighing machine, first offence, not exceeding £10, subsequent offence, not exceeding £20
(xxiii) Tribunal	Court of Petty Sessions	..	Two Justices of the Peace

RELATING TO WEIGHTS AND MEASURES—continued.

South Australia.	Western Australia.	Tasmania.
..	<p>Coal and firewood must be sold by weight, provided that in cases exceeding 5 cwt. it may be sold otherwise with the purchaser's consent, which must be produced to an Inspector on demand (Provisions as to firewood apply only in proclaimed districts)</p>	<p>Coal and firewood must be sold by weight, provided that in cases exceeding 5 cwt. it may be sold otherwise with the purchaser's consent, which must be produced to an Inspector on demand (Provisions as to firewood apply only in proclaimed districts)</p>
..	<p>Articles sold or exposed for sale by retail enclosed in packages must have the net weight or measure printed or written on the outside of the package or upon a label firmly attached thereto</p>	<p>Articles sold or exposed for sale by retail enclosed in packages must have the net weight or measure printed or written on the outside of the package or upon a label firmly attached thereto</p>
..	<p>An Inspector may at all reasonable times enter any building or place and stop and inspect any vehicle and inspect any receptacle and any article therein for sale in a package, and weigh or measure it in the presence of the person in charge, and seize any article contravening the Act</p>	<p>An Inspector may at all reasonable times enter any building or place and stop and inspect any vehicle and inspect any receptacle and any article therein for sale in a package, and weigh or measure it in the presence of the person in charge, and seize any article contravening the Act</p>
<p>(a) Selling by other than standard weights and measures, not exceeding 40s. (b) Selling by other than avoirdupois weights, not exceeding £5 (c) Possessing unjust weights, measures or weighing machine, first offence not exceeding £5, subsequent not exceeding £10, sale void and articles forfeited (d) Selling false weights, etc., first offence not exceeding £10, second not exceeding £50</p>	<p>(a) Falsifying, injuring or destroying a standard, not exceeding £100 (b) Offence against the Act, first offence not exceeding £20, subsequent offences, where committed with intent to defraud, in lieu of or in addition to fine, imprisonment up to three months</p>	<p>(a) Falsifying, injuring or destroying a standard, not exceeding £100 (b) Offence against the Act, first offence not exceeding £20, subsequent offences, where committed with intent to defraud, in lieu of or in addition to fine, imprisonment up to three months</p>
Two Justices of the Peace or a Special Magistrate	Court of Petty Sessions ..	Police Magistrate or two or more Justices

SECTION IV.

POPULATION.

[NOTE.—This Section is printed out of its usual order for the reasons given on page 74.]

§ 1. Commonwealth Population—Its Distribution and Fluctuation.

1. **Present Population.**—The estimated population of the several States and Territories of the Commonwealth at the end of each of the five years 1917 to 1921 is shewn in the following table:—

POPULATION OF COMMONWEALTH, ON 31st DECEMBER, 1917 TO 1921.

Year.	States.						Territories.		Common-wealth.
	New South Wales.	Victoria.	Queens-land.	South Australia.	Western Australia.	Tas-mania.	North-ern.	Federal.	
MALES.									
1917	960,103	671,008	354,929	213,691	157,355	96,945	3,748	1,080	2,458,859
1918	984,453	684,167	363,650	219,723	159,662	100,109	3,499	1,179	2,516,442
1919	1,041,993	739,872	390,682	240,226	174,750	106,374	3,376	1,008	2,698,281
1920	1,067,513	753,710	397,180	245,325	176,638	107,283	2,911	1,062	2,751,622
1921	1,083,926	764,810	405,593	252,170	178,222	110,650	2,718	1,128	2,798,617
FEMALES.									
1917	959,518	746,231	332,699	233,139	149,137	101,131	1,055	1,024	2,523,934
1918	976,990	753,266	341,887	237,965	150,120	102,815	1,141	1,053	2,565,237
1919	996,159	763,369	346,906	241,389	152,655	103,581	1,171	911	2,606,141
1920	1,023,602	774,441	355,065	245,852	154,181	105,564	1,081	910	2,660,696
1921	1,043,345	786,142	364,423	250,433	156,951	108,303	1,019	936	2,711,612
TOTAL.									
1917	1,919,621	1,417,239	687,628	446,830	306,492	198,076	4,803	2,104	4,982,793
1918	1,961,443	1,437,433	705,537	457,688	309,782	202,924	4,640	2,232	5,081,679
1919	2,038,152	1,503,241	737,588	481,615	327,405	209,955	4,547	1,919	5,304,422
1920	2,091,115	1,528,151	752,245	491,177	330,819	212,847	3,992	1,972	5,412,318
1921	2,127,271	1,550,952	770,016	502,603	335,173	218,413	3,737	2,064	5,510,229

2. **Growth of Population.**—(i) *1788 to 1824.* From 1788, when settlement first took place in Australia, until December, 1825, when Van Diemen's Land (now Tasmania) became a separate colony, the whole of the British Possessions in Australia were regarded as one colony, viz., that of New South Wales. The population during this period increased very slowly, and at the end of 1824 had reached only 48,072.

The population with which settlement in Australia was inaugurated, and that at the end of each year until 1824, are as follows :—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1788 TO 1824.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1788 ^a	..	..	1,024	1806	5,389	2,521	7,910
1788	..	..	859	1807	5,939	2,855	8,794
1789	..	..	645	1808	6,822	3,441	10,263
1790	..	..	2,056	1809	7,618	3,942	11,560
1791	..	..	2,873	1810	7,585	3,981	11,566
1792	..	..	3,264	1811	7,697	4,178	11,875
1793	..	..	3,514	1812	8,132	4,498	12,630
1794	..	..	3,579	1813	9,102	4,855	13,957
1795	..	..	3,466	1814	9,295	4,791	14,086
1796	2,953	1,147	4,100	1815	9,848	5,215	15,063
1797	3,160	1,184	4,344	1816	11,690	5,863	17,553
1798	3,367	1,221	4,588	1817	14,178	7,014	21,192
1799	3,804	1,284	5,088	1818	17,286	8,573	25,859
1800	3,780	1,437	5,217	1819	21,366	10,106	31,472
1801	4,372	1,573	5,945	1820	23,784	9,759	33,543
1802	5,208	1,806	7,014	1821	26,179	9,313	35,492
1803	5,185	2,053	7,238	1822	27,915	9,449	37,364
1804	5,313	2,285	7,598	1823	30,206	10,426	40,632
1805	5,395	2,312	7,707	1824	36,871	11,201	48,072

(a) On 26th January.

(ii) 1825 to 1858. The period extending from 1825 to 1859 witnessed the birth of the colonies of Tasmania (then known as Van Diemen's Land), Western Australia, South Australia, Victoria, and Queensland. The years in which these came into existence as separate colonies were as follows :—Tasmania, 1825; Western Australia, 1829; South Australia, 1834; Victoria, 1851; Queensland, 1859.

The estimated population of the Commonwealth at the end of each year of this transition period is as follows :—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1825 TO 1858.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1825	40,288	12,217	52,505	1842	153,758	87,226	240,984
1826	41,289	12,593	53,882	1843	158,846	92,002	250,848
1827	43,053	13,247	56,300	1844	165,034	90,253	264,287
1828	44,778	13,419	58,197	1845	173,159	105,989	279,148
1829	46,946	14,988	61,934	1846	181,342	111,907	293,249
1830	52,885	17,154	70,039	1847	190,265	118,532	308,797
1831	57,037	18,944	75,981	1848	201,612	130,716	332,328
1832	62,254	21,683	83,937	1849	221,978	151,384	373,362
1833	71,669	26,426	98,095	1850	238,683	166,673	405,356
1834	76,259	29,297	105,556	1851	256,975	180,690	437,665
1835	81,929	31,425	113,354	1852	304,126	209,670	513,796
1836	89,417	35,703	125,120	1853	358,203	242,789	600,992
1837	94,881	39,607	134,488	1854	414,337	280,580	694,917
1838	105,271	46,597	151,868	1855	470,118	323,142	793,260
1839	115,480	54,459	169,939	1856	522,144	354,585	876,729
1840	127,306	63,102	190,408	1857	574,800	395,487	970,287
1841	144,114	76,854	220,968	1858	624,380	426,448	1,050,828

(iii) 1851 to 1921. From 1859, the year in which Queensland came into existence as a separate colony, until the beginning of 1901, when the Commonwealth of Australia was inaugurated under the provisions of the Commonwealth Constitution Act, Australia consisted of six States, practically independent of each other in all matters of government. During this period, the population of the Commonwealth increased from 1,050,828 at the end of 1858 to 3,765,339 on the 31st December, 1900. The particulars for this period are given in the table hereunder.

During the twenty-one years that have elapsed since the federation of the States was effected the population of the Commonwealth has increased by 1,744,890, from 3,765,339 on 31st December, 1900, to 5,510,229 on 31st December, 1921, as shewn hereunder :—

POPULATION OF COMMONWEALTH ON 31st DECEMBER, 1859 TO 1921.

Year.	Males.	Females.	Total.	Year.	Males.	Females.	Total.
1859	644,376	452,929	1,097,305	1891	1,736,617	1,504,368	3,240,985
1860	668,560	477,025	1,145,585	1892	1,766,772	1,538,981	3,305,753
1861	669,373	498,776	1,168,149	1893	1,791,815	1,570,080	3,361,895
1862	683,650	523,268	1,206,918	1894	1,824,217	1,602,543	3,426,760
1863	704,259	555,033	1,259,292	1895	1,855,539	1,636,082	3,491,621
1864	740,433	584,750	1,325,183	1896	1,887,174	1,665,924	3,553,098
1865	773,278	616,765	1,390,043	1897	1,917,460	1,700,323	3,617,783
1866	800,648	643,307	1,443,955	1898	1,937,629	1,727,086	3,664,715
1867	819,127	664,721	1,483,848	1899	1,959,074	1,756,914	3,715,988
1868	849,272	690,280	1,539,552	1900	1,976,992	1,788,347	3,765,339
1869	875,139	717,018	1,592,157	1901	2,004,836	1,820,077	3,824,913
1870	902,494	745,262	1,647,756	1902	2,028,008	1,847,310	3,875,318
1871	928,918	771,970	1,700,888	1903	2,045,144	1,871,448	3,916,592
1872	947,422	795,425	1,742,847	1904	2,072,783	1,901,367	3,974,150
1873	972,907	821,613	1,794,520	1905	2,100,118	1,932,859	4,032,977
1874	1,001,096	848,296	1,849,392	1906	2,126,730	1,964,755	4,091,485
1875	1,028,489	869,734	1,898,223	1907	2,160,213	2,001,509	4,161,722
1876	1,061,477	897,202	1,958,679	1908	2,193,981	2,038,297	4,232,278
1877	1,102,340	928,790	2,031,130	1909	2,242,215	2,081,745	4,323,960
1878	1,132,573	959,591	2,092,164	1910	2,296,308	2,128,775	4,425,083
1879	1,168,781	993,562	2,162,343	1911	2,382,224	2,191,644	4,573,868
1880	1,204,514	1,027,017	2,231,531	1912	2,478,208	2,268,593	4,746,801
1881	1,247,059	1,059,677	2,306,736	1913	2,554,898	2,339,201	4,894,099
1882	1,289,892	1,098,190	2,388,082	1914	2,577,528	2,394,759	4,972,287
1883	1,357,423	1,148,313	2,505,736	1915	2,528,016	2,442,038	4,970,054
1884	1,411,996	1,193,729	2,605,725	1916	2,437,275	2,481,357	4,918,632
1885	1,460,394	1,234,124	2,694,518	1917	2,458,859	2,523,934	4,982,793
1886	1,510,954	1,377,096	2,788,050	1918	2,516,442	2,565,237	5,081,679
1887	1,559,118	1,322,244	2,881,362	1919	2,698,281	2,606,141	5,304,422
1888	1,610,548	1,371,129	2,981,677	1920	2,751,622	2,660,696	5,412,318
1889	1,649,094	1,413,383	3,062,477	1921	2,798,617	2,711,612	5,510,229
1890	1,692,831	1,458,524	3,151,355				

It will be seen from the foregoing tables that the population of Australia attained its first million in 1858, seventy years after settlement was first effected; its second million nineteen years later, in 1877; its third million twelve years later, in 1889; its fourth million sixteen years later, in 1905; and its fifth million thirteen years later, in 1918. The fifth million was expected in 1915, but owing to the war and the consequent dispatch of men out of Australia this result was not attained until 1918. As a matter of fact, through the retardation of immigration and the departure of troops consequent upon the war, the total population of Australia diminished during 1915 by 2,233 persons, and during 1916 by 51,422 persons. Taking the sexes separately, there was a decrease of 140,253 males and an increase of 86,598 females during those years. During 1917 and 1918 there was an increase of 163,047 in the total population, made up of 79,167 males and 83,880 females, and the fifth million was attained in March, 1918. In 1919 the population increased by 222,743 of whom 181,839 were males and 40,904 were females. The large increase in males was mainly due to the number of returning soldiers. The increase during 1920 was 107,896, of whom 53,341 were males and 54,555 were females, and during 1921 was 97,911, 46,995, and 50,916 respectively.

The growth of the total population of the Commonwealth generally, and of each State therein, is graphically shewn on page 1067, and of each sex considered separately on pages 1068 and 1069.

§ 2. Influences affecting Growth and Distribution of Population.

1. **Mineral Discoveries.**—The discovery of gold in Australia in 1851 was undoubtedly one of the most influential factors in bringing about a rapid settlement of the country. Its effect may be gauged by a comparison of the increase during the ten years preceding, with that during the ten years succeeding the discovery. From 31st December, 1840, to 31st December, 1850, the increase was only 214,948 (viz., from 190,408 to 405,356.) The rush of people to the newly-discovered goldfields during the succeeding decennium caused an increase of no less than 740,229, the population advancing to 1,145,585 on 31st December, 1860. In 1861, owing to the opening up in that year of the New Zealand goldfields, a rush of population from Australia set in, the result being that the net increase of population of the Commonwealth, which in 1855 amounted to 98,343, and even in 1860 was as much as 48,280, fell in 1861 to 22,564. In fact, during the year 1861 the departures from Australia exceeded the arrivals by 6,283, the gain of 22,564 being due to the births exceeding the deaths by 28,847.

In more recent years the gold discoveries of Western Australia in 1886 and subsequent years led to such extensive migration to that State that its population, which on 31st December, 1885, amounted to only 35,959, increased in 36 years by no less than 299,214, totalling 335,173 on 31st December, 1921. In this case, however, the additions to the population of the western State were largely drawn for some years from those of the eastern States, so that the actual gain of population to the Commonwealth was relatively slight.

2. **Pastoral Development.**—Very early in the colonisation of Australia it was recognised that many portions were well adapted for pastoral pursuits, and pastoral developments have led to a considerable distribution of population in various directions. As the numbers engaged in connexion therewith, compared with the value of the interest involved, are relatively small, and as pastoral occupancy tends to segregation rather than aggregation of population, the growth of the pastoral industry is but slightly reflected in the population statistics of the Commonwealth.

3. **Agricultural Expansion.**—At the present time the area annually devoted to crops in the Commonwealth is over 15 millions of acres. Although considerable in itself, this area, viewed in relation to the total area of the Commonwealth, is relatively small, and represents considerably less than 1 per cent. of the total area. Per head of population of the Commonwealth the area under crop, however, is about $2\frac{3}{4}$ acres, a fairly high amount when allowance is made for the recency of Australian settlement. About 81½ per cent. of the area under crop in 1920–21 was devoted to the production of wheat and hay, both of which for profitable production in Australia require a considerable area in the one holding. Thus, on the whole, the agricultural districts of Australia are somewhat sparsely populated, though in a less marked degree than is the case in the pastoral areas.

4. **Progress of Manufacturing Industries.**—One direct effect of the development of manufacturing industries is the concentration of population in places offering the greatest facilities for the production of the particular commodities. In Australia, where manufacturing industries are as yet in their infancy, the tendency throughout has been to concentrate the manufacturing establishments in each metropolis. This has accentuated the growth of the capital cities, which growth, when compared with that of the rest of the country, appears somewhat abnormal.

5. **Influence of Droughts.**—The droughts, which at times so seriously affect the agricultural and pastoral prospects of Australia, have a marked influence on the distribution of population. Districts, which in favourable seasons are fairly populous, occasionally in times of drought become more or less depopulated until the return of better conditions. This movement, however, ordinarily affects only the internal distribution of the population and not the total, but severe drought may even make its influence felt in the statistics of the total population of Australia. Thus, in the case of the drought of 1902–3, the departures from the Commonwealth exceeded the arrivals for the two years 1903 and 1904 by 12,859. It may be noted also, that for the former of these years, the natural increase of population by excess of births over deaths was abnormally low, being only 51,150, as compared with 54,698 in the preceding, and 60,541 in the succeeding year. As the solution of the problem of dealing with droughts is advanced, their influence will be less marked.

6. *Other Influences.*—(i) *Commercial Crisis.* The effect on population of a commercial crisis, such as that which occurred in Australia in the early years of the final decade of the last century, is clearly indicated on comparing the migration statistics of the Commonwealth for the five years 1887–91 with those for the five years 1892 to 1896. During the former period, the arrivals in the Commonwealth exceeded the departures by no less than 146,872. In the latter period, the corresponding excess amounted to only 2,064.

(ii) *War.* The war in South Africa has left its impress on the population statistics of the Commonwealth, the departures during 1899 and 1900 exceeding the arrivals for the same period by 10,546. A similar but much more marked result is shewn in connexion with the European war. Thus, for the four years 1914, 1915, 1916 and 1917 taken together, the departures exceeded the arrivals by a total of no less than 338,823. In 1918, 1919, 1920, and 1921, however, the arrivals exceeded the departures by 233,348. In this connexion it may be mentioned that during 1919 the arrivals of members of the Expeditionary Forces exceeded the departures of such members by 162,376.

A reference to the graphs of population on pages 1067 to 1072 will illustrate the preceding observations.

§ 3. Special Characteristics of Commonwealth Population.

1. *Sex Distribution.*—In respect of the relative proportions of the sexes in its population, Australia has, since the first settlement of the continent in 1788, differed materially from the older countries of the world. In the latter, the populations have, in general, grown by natural increase, and their composition usually reflects that fact, the numbers of males and females being in most countries approximately equal, with a more or less marked tendency, however, for the females to slightly exceed the males. The excess of females arises from a variety of causes, amongst which may be mentioned—(a) higher rate of mortality amongst males; (b) greater propensity on the part of males to travel; (c) the effects of war; (d) employment of males in the army, navy, and mercantile marine; (e) preponderance of males amongst emigrants. On the other hand, the last-mentioned cause has tended naturally to produce an excess of males in Australia, since the majority of those emigrating to Australia have been males. The circumstances under which the colonisation of Australia was first undertaken, and the remoteness of this country from Europe, have combined to accentuate this feature.

There is little doubt that the continent presented few attractions to the explorers who visited its shores, mainly on the west and north, during the seventeenth, and early part of the eighteenth centuries, and it was only when the Declaration of Independence of the United States, in 1776, closed to the British prison authorities the North American plantations, which had previously been used as receptacles for the deportation of convicts, that the overcrowding of the gaols caused them to consider the advisability of converting the great southern continent into a convict settlement. This idea was put into practice in 1787, when the first consignment left England, arriving in Sydney Cove on the 26th January, 1788. Reports concerning the number of persons actually landed are conflicting, but it appears that the total may be set down approximately at 1,024, including the military. Details as to the sexes are not available, but the males must have largely preponderated. Indeed, nearly nine years later, on the 31st December, 1796, in a total population of 4,100 there was an excess of 44 males in every 100 of the population.

The subsequent progress of Australia resulting from extensive mineral discoveries and the development of its great natural resources, pastoral, agricultural, forestal, etc., have tended to attract male rather than female immigrants, particularly in view of the distance from the principal centres of European population. Even at the 31st December, 1921, after more than 133 years of settlement, there was an excess of 1.58 males in every 100 of the population, and this notwithstanding the equalising tendency due to additions to the population by means of births and to deductions therefrom by the deaths of immigrants, and notwithstanding also the heavy losses which the Australian Imperial Forces suffered during the Great War.

In the second issue of this publication, on pages 163 to 165, an extended table was published showing the masculinity of the population of each of the States for each year from 1796 to 1907. In the fifth issue, on page 123, the figures in this table for the years 1901–7 were modified to agree with the corrected estimates of the population, consequent

on the Census of 3rd April, 1911. The figures given in the tables mentioned represent the number of males to each 100 females.

A more satisfactory representation of masculinity, however, may be obtained by computing the ratio of the excess of males over females to the total population. This ratio expressed as a percentage has now been adopted by the Commonwealth Bureau of Census and Statistics as the "masculinity" of the population, and the ratios so computed are given hereunder for intervals of 5 years from 1800 to 1915 and for the six years 1916, 1917, 1918, 1919, 1920 and 1921 for the Commonwealth and each of its component States and Territories:—

MASCULINITY OF THE POPULATION, 1800 TO 1921.
(EXCESS OF MALES OVER FEMALES PER 100 OF POPULATION.)

Year.	States.						Territories.		C'wealth.
	N.S.W.(a)	Victoria.	Q'land.	S.A.(b)	W. Aust.	Tasmania.	North'n (c)	Federal (d)	
1800	44.91	..	..	..	..	..	..	..	44.91
1805	40.00	..	..	..	..	..	..	..	40.00
1810	31.16	..	..	..	..	..	..	..	31.16
1815	30.76	..	..	..	..	..	..	..	30.76
1820	41.81	..	..	..	..	..	..	..	41.81
1825	53.00	..	..	..	..	54.72	..	..	53.46
1830	52.06	..	..	..	49.66	49.17	..	..	51.02
1835	45.71	..	..	..	31.10	43.13	..	..	44.55
1840	34.25	..	..	13.08	24.10	39.31	..	..	33.72
1845	21.05	..	..	14.07	20.07	36.63	..	..	24.06
1850	16.13	..	..	12.72	21.61	28.44	..	..	17.76
1855	11.14	30.41	..	0.31	31.87	10.57	..	..	18.53
1860	13.53	22.74	19.88	2.47	25.07	10.56	..	..	16.72
1865	9.12	12.89	22.62	4.36	26.98	7.59	..	..	11.26
1870	9.29	9.74	20.10	2.84	23.42	6.09	..	..	9.54
1875	8.71	6.74	20.83	3.49	19.55	5.41	..	..	8.36
1880	9.28	4.95	17.53	6.69	14.92	5.53	..	..	7.95
1885	9.89	5.04	18.02	5.02	15.06	5.09	..	..	8.40
1890	8.28	5.06	13.87	4.12	18.98	5.61	..	..	7.43
1895	6.45	2.55	12.34	2.46	11.72	3.92	..	..	6.28
1900	5.28	0.61	11.24	1.98	22.34	3.83	76.57	..	5.01
1905	5.24	-1.17	9.81	0.08	17.13	2.96	66.49	..	4.15
1910	4.41	-0.65	8.69	1.54	14.13	2.03	65.89	..	3.79
1915	2.74	-2.55	6.83	-0.92	7.93	-0.13	59.95	4.65	1.73
1916	0.37	-5.16	4.03	-3.79	3.78	-1.86	59.11	7.42	-0.90
1917	0.03	-5.31	3.23	-4.35	2.68	-2.11	56.07	2.66	-1.31
1918	0.38	-4.81	3.08	-3.99	3.08	-1.33	50.82	5.65	-0.96
1919	2.25	-1.56	5.94	-0.24	6.75	1.33	48.49	5.05	1.74
1920	2.10	-1.36	5.60	-0.11	6.79	0.81	45.84	7.71	1.68
1921	1.91	-1.38	5.35	0.33	6.35	0.77	45.46	9.30	1.58

(a) Including Federal Territory prior to 1911. (b) Including Northern Territory prior to 1900.
(c) Included with South Australia prior to 1900. (d) Part of New South Wales prior to 1911.

NOTE.—The sign — denotes excess of females over males per 100 of population.

The influence of the war will be observed in the decline of the masculinity for each of the States and the Commonwealth, and the introduction of negative results in the cases of South Australia, Tasmania, and the Commonwealth indicating an excess of females there, as well as in Victoria, where this phenomenon was in evidence as far back as 1905. The effect of the demobilization of soldiers has been to restore the excess of males in every State, except Victoria.

The curious inequalities of the increases in the number of males and in the number of females for the Commonwealth as a whole, and for the individual States respectively, will be seen by referring to the graphs on pages 1068 and 1069.

The significance of the rates of masculinity shewn in the above table will perhaps be better understood by a comparison with the corresponding information for other countries. This has been made in the next table, which shews, for some of the principal countries of the world for which such particulars are available, the masculinity of the population according to the most recent statistics.

MASCULINITY OF THE POPULATION OF VARIOUS COUNTRIES.

Country.	Year.	Excess of Males over Females in each 100 of Population.	Country.	Year.	Excess of Males over Females in each 100 of Population.
Argentine Republic ..	1913	7.27	Russia (European) ..	1914	-1.05
Canada ..	1911	6.07	Switzerland ..	1910	-1.66
Union of South Africa(a)	1921	2.92	France ..	1911	-1.74
India (Feudatory States)	1921	2.73	Sweden ..	1920	-1.76
New Zealand ..	1921	2.26	Italy ..	1911	-1.81
British India..	1911	2.24	Poland ..	1911	-1.88
United States of America	1920	1.98	Finland ..	1919	-2.12
Australia ..	1921	1.58	Denmark ..	1921	-2.44
Ireland ..	1919	1.08	Spain ..	1910	-2.84
Rumania ..	1915	0.75	Norway ..	1910	-3.36
Greece ..	1907	0.68	Scotland ..	1921	-3.79
Japan ..	1920	0.22	Austria ..	1920	-4.24
Bulgaria ..	1920	0.19	Prussia ..	1919	-4.49
Chile ..	1920	-0.57	England and Wales ..	1921	-4.54
Netherlands ..	1920	-0.67	German Empire ..	1919	-4.78
Belgium ..	1920	-1.04	Portugal ..	1911	-5.08

NOTE.—The sign — denotes excess of females over males in each 100 of population.

(a) White population only.

2. Age Distribution.—The causes which operated to bring about an excess of males in the population of the Commonwealth were equally effective in rendering the age distribution essentially different for many years from that of older countries. The majority of the immigrants, whether male or female, were in the prime of life, and as the Australian birth-rate in earlier years was a comparatively high one, the effect produced was a population in which the proportion of young and middle-aged persons was somewhat above, and the proportion for advanced ages somewhat below the normal. With the progress of time, however, the age distribution for Australia has fallen more and more into line with that for the older countries, and now, except in shewing a somewhat lower proportion at old age and a slightly higher one at young ages, does not differ essentially therefrom.

Thus in the Commonwealth at the Census of 3rd April, 1911, the age distribution of the population was as shewn in the table hereunder; that for England and Wales for the same Census is given also for the sake of comparison:—

AGE DISTRIBUTION OF POPULATION.

COMMONWEALTH, AND ENGLAND AND WALES IN 1911.

Age Group.	Population of COMMONWEALTH, 3rd April, 1911.	Percentage on Total Population.	Population of ENGLAND and WALES, 3rd April, 1911.	Percentage on Total Population.
Under 15	1,409,823	31.65	11,050,867	30.63
15 and under 65	2,854,753	64.08	23,141,109	64.16
65 and upwards	190,429	4.27	1,878,516	5.21
Total	4,455,005	100.00	36,070,492	100.00

During the past 50 years, the age distribution of the Australian population has varied considerably, as will be seen from the following table, which gives for each sex the proportion per cent. of the total population in the age groups "under 15," "15 and under 65," and "65 and over." The figures upon which these percentages have been computed are those furnished by the Census of the several States and the Commonwealth Census of 1911. Those for 1861 include the results of the Western Australian Census of 1859,

while those for 1871 include the results of the Western Australian and Tasmanian Censuses of 1870:—

AGE DISTRIBUTION OF COMMONWEALTH POPULATION, 1861 TO 1911.

Census Year.	Males.				Females.				Persons.			
	Under 15 Years.	15 and under 65.	65 and over.	Total.	Under 15 Years.	15 and under 65.	65 and over.	Total.	Under 15 Years.	15 and under 65.	65 and over.	Total.
	%	%	%	%	%	%	%	%	%	%	%	%
1861..	31.41	67.42	1.17	100	43.03	56.20	0.77	100	36.28	62.72	1.00	100
1871..	38.84	59.11	2.05	100	46.02	52.60	1.38	100	42.09	56.17	1.74	100
1881..	36.37	60.85	2.78	100	41.89	56.07	2.04	100	38.91	58.65	2.44	100
1891..	34.77	62.02	3.21	100	39.36	58.08	2.56	100	36.90	60.20	2.90	100
1901..	33.87	61.82	4.31	100	36.50	59.85	3.65	100	35.12	60.88	4.00	100
1911..	30.84	64.82	4.34	100	32.52	63.28	4.20	100	31.65	64.08	4.27	100

The excess of males over females, which existed prior to the war, was found mainly in ages of 21 and upwards. In the total population under the age of 21 there was, at the date of the 1911 Census, an excess of males over females amounting to less than 1.3 in each 100 of population, while in that aged 21 and upwards the excess of males over females was more than 5.8 in each 100 of population. The corresponding figures for the Census of 1921 are not yet available.

3. Race and Nationality.—(i) *Constitution of Australia's Population.* As regards race, the population of the Commonwealth may be conveniently divided into two main groups, one comprising the aboriginal natives of Australia, and the other the various immigrant races which, since the foundation of settlement in 1788, have made the Commonwealth their home. Under the head of "immigrant races" would, of course, be included not only those residents of Australia who had been born in other countries, but also their descendants born in Australia.

(a) *Aboriginals.* It would appear that the aboriginal population of Australia was never large, and that the life led by them was, in many parts of the country, a most precarious one. With the continued advance of settlement the numbers have shrunk to such an extent that in the more densely populated States they are practically negligible. Thus, at the Census of 1911 the number of full-blood aboriginals who were employed by whites or were living in proximity to settlements of whites was stated to be only 19,939. In some cases, however, more particularly in Queensland, Western Australia, and the Northern Territory, there are, in addition, considerable numbers of natives still in the "savage" state, numerical information concerning whom is of a most unreliable nature, and can be regarded as little more than the result of mere guessing.

Ethnologically interesting as is this remarkable and rapidly-disappearing race, practically all that has been done to increase our knowledge of them, their laws, habits, customs, and languages, has been the result of more or less spasmodic and intermittent effort on the part of enthusiasts either in private life or in the public service. An enumeration of them had never been seriously undertaken in connexion with any Australian Census, prior to that recently taken on 4th April, 1921, though a record of the numbers who were in the employ of whites, or living in contiguity to the settlements of whites, has on the occasion of the recent Censuses usually been made. As stated above, various guesses at the number of aboriginal natives at present in Australia have been made, and the general opinion appears to have prevailed that 150,000 might be taken as a rough approximation to the total. More recent estimates, however, have given results considerably below this figure. Thus, in his report of April 30, 1915, the Queensland Chief Protector of Aborigines estimates the total at 61,705, distributed as follows:—New South Wales, 6,580; Victoria, 283; Queensland, 15,000; South Australia, 4,842; Western Australia, 32,000; Northern Territory, 3,000. In his report of April 20, 1917, the Chief Protector of Aborigines in Queensland estimated their number in that State to be 16,600 in 1916. A somewhat similar estimate made at an earlier date by Dr. Roth, formerly Chief Protector of Aborigines in Queensland, gave Queensland at least 18,000; Western Australia at least 24,000,

and the Northern Territory from 20,000 to 22,000. In view of these figures it would appear that the number of full-blood Australian aboriginals has been less than 80,000 for several years. The whole matter, however, is involved in considerable doubt.

In connexion with the Census of 1921, special arrangements were made with the Chief Protectors of Aboriginals in the several States, and as a result of the careful inquiries made by them, an enumeration was made of the full-blood aboriginals of Australia, which, although still incomplete, probably represents a much closer estimate than has been available previously in connexion with the taking of a Census. The most serious defect on the present occasion is an estimate of 10,000 aboriginals which the Chief Protector of Western Australia regards as out of touch with his Department, and consequently not included in the figures supplied by him. Taking these into account, and adding them to the numbers otherwise recorded either by Census Collectors or by officers of the Aboriginals' Protection Department, the total in Australia at 4th April, 1921, may be stated approximately as follows:—

ESTIMATED FULL-BLOOD AUSTRALIAN ABORIGINALS, 4th APRIL, 1921.

Particulars.	N.S.W.	Vic- toria.	Queens- land.	South Australia.	Western Australia.	Northern Territory.	Total C'with.
Males	879	62	7,234	876	13,611	9,466	32,128
Females	622	49	5,380	733	11,976	7,883	26,643
Total	1,501	111	12,614	1,609	25,587	17,349	58,771

In the above table the 10,000 estimated as in Western Australia out of touch with civilization have been treated as 5,000 males and 5,000 females. From the foregoing it would seem that a muster of every aboriginal of full-blood in Australia would fail to produce a total of 60,000 at the present time.

In the Commonwealth Constitution Act provision is made for aboriginal natives to be excluded for all purposes for which statistics of population are made use of under the Act, but the opinion has been given by the Commonwealth Attorney-General that "in reckoning the population of the Commonwealth half-castes are not aboriginal natives within the meaning of section 127 of the Commonwealth of Australian Constitution Act, and should therefore be included." It may be added, however, that as "half-castes," living in the nomadic state, are practically indistinguishable from aboriginals, it has not always been found practicable to make the distinction, and further, that no authoritative definition of "half-caste" has yet been given.*

(b) *Immigrant Races.* As regards the immigrant races, it may be said that they consist mainly of natives of the three divisions of the United Kingdom and their descendants. The proportion of Australian-born contained in the population of the Commonwealth has, in recent years, increased rapidly, and at the Census of 3rd April, 1911, out of a total population of 4,424,535 persons whose birthplaces were specified, no fewer than 3,667,670, or 82.90 per cent., were Australian born, while of the remainder, 590,722, or 13.35 per cent., were natives of the United Kingdom, and 31,868, or 0.72 per cent., were natives of New Zealand, that is, 96.97 per cent. of the total population at the date of the Census had been born in either Australasia or the United Kingdom. The other birthplaces most largely represented in the Commonwealth were Germany, 32,990 (0.75 per cent.); China, 20,775 (0.47 per cent.); Scandinavia (comprising Sweden, Norway and Denmark), 14,700 (0.33 per cent.); Polynesia, 3,410 (0.08 per cent.); British India, 6,644 (0.15 per cent.); United States of America, 6,642 (0.15 per cent.); and Italy, 6,719 (0.15 per cent.). The total population of Asiatic birth was 36,442 (0.82 per cent.), of whom 3,474 were born in Japan.

(c) *Non-European Races.* The Census taken on the 3rd April, 1911, was the first occasion on which a systematic attempt had been made to ascertain the number of persons of non-European races in Australia. On former occasions the inquiry did not usually extend further than a request that in all cases in which the person enumerated

* An article on the Aborigines of Australia, specially written for the Year Book by W. Ramsay Smith, D.Sc., M.B., Ch.M., F.R.S.E., Permanent Head of the Department of Public Health of South Australia, will be found in Year Book No. 3, pages 158 *et seq.*

was an Aboriginal or a Chinese, whether of the full-blood or of the half-blood, the fact should be specially noted in the column on the Census schedule relating to birthplace. At the Census of 3rd April, 1911, the inquiry as to race was made one of the leading items, and all persons of non-European race were required to have their race specified. From the figures so obtained the following table has been compiled :—

PERSONS OF NON-EUROPEAN RACE IN THE COMMONWEALTH, 3rd APRIL, 1911.
(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

States and Territories.	Aus-tralian.	Asiatic.		African.		American.		Polynesian.		Indefinite.		Total.	
	Half-caste Aborigi-nals.	Full-blood.	Half-caste.	Full-blood.	Half-caste.	Full-blood.	Half-caste.	Full-blood.	Half-caste.	Full-blood.	Half-caste.	Full-blood.	Half-caste.
States—													
N.S. Wales ..	4,512	10,983	1,890	169	166	10	7	343	70	2	..	11,507	6,145
Victoria ..	447	5,972	1,056	58	63	6	9	12	5	1	2	6,049	1,582
Queensland ..	2,508	9,123	940	53	65	37	5	2,123	142	..	..	11,336	3,060
S. Australia ..	692	1,099	175	18	21	5	1	5	4	2	..	1,079	893
W. Australia ..	1,175	5,578	129	48	15	7	2	25	3	..	..	5,658	1,624
Tasmania ..	227	532	127	4	6	..	..	5	2	..	..	541	362
Territories—													
Northern ..	244	1,594	35	7	..	..	..	11	1	..	..	1,612	280
Federal ..	8	7	..	..	..	..	..	..	..	..	..	7	8
Total ..	10,113	34,838	3,852	357	336	65	24	2,524	227	5	2	37,789	14,554

The proportion of population of non-European race (exclusive of full-blood aboriginals) in each State and Territory is shewn in the following table, full-blood and half-caste non-Europeans being shewn separately :—

PROPORTION OF NON-EUROPEAN RACES IN THE COMMONWEALTH, 3rd APRIL, 1911.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

States and Territories.	Total Population.	Non-European Race.					
		Full-blood.		Half-caste.		Total.	
		Number.	Number per 1000 of Total Population.	Number.	Number per 1000 of Total Population.	Number.	Number per 1000 of Total Population.
States—							
N. S. Wales ..	1,646,734	11,507	6.99	6,145	3.73	17,652	10.72
Victoria ..	1,315,551	6,049	4.60	1,582	1.20	7,631	5.80
Queensland ..	605,813	11,336	18.71	3,660	6.04	14,996	24.75
S. Australia ..	408,558	1,079	2.64	893	2.19	1,972	4.83
W. Australia ..	282,114	5,658	20.05	1,624	5.76	7,282	25.81
Tasmania ..	191,211	541	2.83	362	1.89	903	4.72
Territories—							
Northern ..	3,310	1,612	487.01	280	84.59	1,892	571.60
Federal ..	1,714	7	4.08	8	4.67	15	8.75
Total C^owealth..	4,455,005	37,789	8.48	14,554	3.27	52,343	11.75

(ii) *Biological and Sociological Significance.* As regards race and nationality, therefore, the population of Australia is fundamentally British, and thus furnishes an example of the transplanting of a race into conditions greatly differing from those in which it had been developed. The biological and sociological significance of this will ultimately appear in the effects on the physical and moral constitution produced by the complete change of climatic and social environment, for the new conditions are likely to considerably modify both the physical characteristics and the social instincts of the constituents of the population. At present, the characteristics of the Australian population, whether physical, mental, moral, or social, are only in the making, and probably it will not be possible to point to a distinct Australian type until three or four generations more have passed. Even then, it is hardly likely that, with the great extent of territory and varying conditions presented by the Commonwealth there will be but one

type; on the contrary, a variety of types may be expected. The Australian, at present, is little other than a transplanted Briton, with the essential characteristics of his British forbears, the desire for freedom from restraint, however, being perhaps somewhat accentuated. The greater opportunity for an open-air existence, and the absence of the restrictions of older civilisations, may be held to be in the main responsible for this.

4. *Differences among the States and Territories.*—(i) *Sex Distribution.* The varying circumstances under which the settlement of the several States has been effected, and the essentially different conditions experienced in the due development of their respective resources have naturally led to somewhat marked differences in the constitution of their populations. In the matter of sex distribution, the States in which the normal condition of older countries is most nearly represented are those of Victoria, South Australia, and Tasmania, in the first-mentioned of which, the females have, for some years past, exceeded the males. This was also the case in South Australia in the years 1915 to 1920. In Western Australia and Queensland, on the other hand, the position of affairs has been somewhat abnormal, the excess of males over females in each 100 of population in 1915 being respectively 7.93 and 6.83. In 1916 and subsequent years, these rates were much reduced, having fallen in 1918 to 3.08 for each of the States mentioned. However, the rates for 1920 have risen to 6.79 and 5.60 respectively, indicating that the pre-war conditions are again in force. In 1917 there was an excess of only 585 males in New South Wales representing an excess of 0.03 in each 100 of the population, followed in 1918 by an excess of 0.38, and an excess of 2.25 in 1919 and 2.10 in 1920.

In the Northern Territory, owing to lack of settlement, the masculinity has always been large, the figures for 1921 giving an excess of males over females in each 100 of population of 45.46.

The variation in the masculinity of the estimated population of the several States and Territories and of the Commonwealth as a whole will be seen in the table on page 1051.

(ii) *Age Distribution.* The disparity in sex distribution exhibited by the several States is accompanied by a corresponding inequality in the matter of age distribution. For the purpose of convenient comparison in this respect the several populations may each be divided into three groups, indicative of dependence on the one hand, and ability to support on the other. The usual division for this purpose is into an initial group of "under 15" classed as "dependent age," a second group of "15 and under 65" classed as "supporting age," and a final group of "65 and upwards" classed "old age." From certain points of view the division might be into two classes, the "supporting" and the "dependent," as the majority of those aged "65 and upwards" strictly belong to the dependent class. The number of persons in each State and Territory at the Census, 3rd April, 1911, in each of the three groups mentioned, and the proportion of same to the total for each State or Territory and the Commonwealth, were as follows:—

**NUMBER AND PROPORTION OF PERSONS IN THE COMMONWEALTH OF
DEPENDENT, SUPPORTING, AND OLD AGE, ON 3rd APRIL, 1911.**

State or Territory.	Number of Persons of—				Proportion of Population of—		
	Dependent age (under 15).	Supporting age (15 and under 65).	Old age (65 and upwards).	All ages.	Dependent age (under 15).	Supporting age (15 and under 65).	Old age (65 and upwards).
States—					%	%	%
New South Wales	526,625	1,053,400	66,709	1,646,734	31.98	63.97	4.05
Victoria ..	400,260	847,700	67,591	1,315,551	30.42	64.44	5.14
Queensland ..	200,020	383,330	22,463	605,813	33.01	63.28	3.71
South Australia	127,290	262,356	18,912	408,558	31.15	64.22	4.63
Western Australia	87,884	187,574	6,656	282,114	31.15	66.49	2.36
Tasmania ..	66,708	116,604	7,899	191,211	34.89	60.98	4.13
Territories—							
Northern ..	485	2,708	117	3,310	14.65	81.81	3.54
Federal ..	551	1,081	82	1,714	32.15	63.07	4.78
Commonwealth ..	1,409,823	2,854,753	190,429	4,455,005	31.65	64.08	4.27

In Western Australia the proportion of the population of supporting age was larger than in any other State, whilst the corresponding Tasmanian proportion was the lowest for the Commonwealth. On the other hand, in Tasmania the proportion of dependent age was the highest for the Commonwealth, while the Victorian proportion was the lowest. Victoria had the highest and Western Australia the lowest proportion of persons aged 65 years and upwards.

In the Northern Territory the proportions are quite exceptional, the percentage of those of dependent age being much lower, and that for supporting age being much higher, than in any other part of the Commonwealth.

(iii) *Birthplaces.* The following table exhibits, in a very condensed form, the distribution of the population of the several States and Territories according to birthplace :—

BIRTHPLACES OF POPULATION AT CENSUS OF 3rd APRIL, 1911.

(COMMONWEALTH.)

Birthplace.	Population of Commonwealth at Census.								
	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	North- ern.	Feder- al.	
Australia ..	1,377,219	1,108,945	446,695	350,261	209,050	172,497	1,505	1,498	3,667,670
New Zealand	13,963	10,067	2,576	986	3,054	1,200	18	4	31,868
United Kingdom	204,394	157,436	120,015	44,431	50,552	13,472	262	160	590,722
Other European Countries	19,771	15,346	20,227	7,989	9,428	1,134	49	5	73,949
Asia ..	11,463	6,676	3,867	1,244	5,996	778	1,413	5	36,442
Africa ..	1,999	1,498	527	357	423	145	9	..	4,958
America ..	4,424	2,983	1,688	764	1,123	279	12	5	11,278
Polynesia	1,204	279	1,728	55	88	44	12	..	3,410
At Sea ..	1,479	1,303	629	422	281	122	2	..	4,238
Unspecified	10,818	11,018	2,861	2,049	2,119	1,540	28	37	30,470
Total ..	1,646,734	1,315,551	605,813	408,558	292,114	191,211	3,310	1,714	4,455,005

The proportions for the several States and Territories for each of the birthplaces shewn in the foregoing table expressed as percentages of the total population, the birthplaces of which were specified, are as follows :—

PERCENTAGE OF COMMONWEALTH POPULATION ACCORDING TO BIRTHPLACE, 3rd April, 1911.

Birthplace.	Percentage of Total Population.								
	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Qld.	S. Aust.	W. Aust.	Tas.	North- ern.	Feder- al.	
Australia ..	%	%	%	%	%	%	%	%	%
New Zealand	84.19	85.01	74.09	86.16	74.66	90.95	45.86	89.32	82.90
U. Kingdom	0.86	0.77	0.43	0.24	1.10	0.63	0.55	0.24	0.72
Other E'pean Countries	12.49	12.07	19.90	10.93	18.05	7.10	7.98	9.54	13.35
Asia ..	1.21	1.18	3.35	1.97	3.37	0.60	1.49	0.30	1.67
Africa ..	0.70	0.51	1.47	0.31	2.14	0.41	43.05	0.30	0.82
America ..	0.12	0.11	0.09	0.09	0.15	0.08	0.27	..	0.11
Polynesia ..	0.27	0.23	0.28	0.19	0.40	0.15	0.37	0.30	0.25
At Sea ..	0.07	0.02	0.29	0.01	0.03	0.02	0.37	..	0.08
Unspecified	0.09	0.10	0.10	0.10	0.10	0.06	0.06	..	0.10
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

As regards distribution in the States according to birthplace, the population of New South Wales is very similar to that of Victoria, the proportions born in the United Kingdom and Asia being slightly higher, and that born in Australia slightly lower, in the case of New South Wales. There is also a rough similarity between the birthplace distributions

of Queensland and Western Australia. In both, the Australian-born represent a much smaller, and those born in the United Kingdom, in "Other European Countries" and in Asia, a much larger proportion than is the case with the remaining States. Polynesians were, however, more numerously represented in Queensland at the date of the Census than in any other State. Natives of New Zealand were, proportionately, most numerous in Western Australia. Tasmania had the largest proportion of Australian-born population, viz., 91 per cent., while Queensland, with 74 per cent., had the smallest. On the other hand, nearly 20 per cent. of Queensland's population consisted of natives of the United Kingdom, while only 7 per cent. of the population of Tasmania had been born there. For the Commonwealth as a whole, over 98½ per cent. of the population were from Australasian or European birthplaces.

In the case of the Northern Territory, about 46 per cent. of the population were Australian born, while 43 per cent. were of Asiatic birth.

§ 4. Elements of Growth of Population.

1. **Natural Increase.**—The two factors which contribute to the growth of a population are the "natural increase" by excess of births over deaths, and the "net immigration," i.e., the excess of arrivals over departures. While the relative potency of these factors depends upon a variety of causes, it may be said that, in general, in the case of a new country "net immigration" occupies an important position as a source of increase of population, while in an old country "natural increase," modified more or less by "net emigration," or excess of departures over arrivals, is the principal element causing growth of population. The table hereunder gives the total natural increase, as well as that of males and females:—

NATURAL INCREASE(a) OF THE POPULATION

OF STATES, TERRITORIES, AND COMMONWEALTH, FROM 1861 to 1921.

Period.	States.						Territories.		C'wealth
	N.S.W. (b)	Victoria.	Q'land.	S. Aust. (c)	W.Aust.	Tas.	North- ern. (d)	Federal. (e)	
MALES.									
1861 to 1865	22,055	34,286	2,444	9,645	765	3,893	..	..	73,088
1866 to 1870	25,850	34,997	5,739	10,881	754	3,281	..	..	81,502
1871 to 1875	30,067	35,132	6,704	9,979	710	3,077	..	..	85,669
1876 to 1880	34,040	31,985	7,960	13,676	1,023	3,472	..	..	92,156
1881 to 1885	42,658	33,614	7,986	16,969	1,002	5,284	..	..	107,513
1886 to 1890	54,753	39,528	17,872	16,519	1,755	6,093	..	..	136,520
1891 to 1895	56,834	45,606	20,525	15,758	1,436	6,889	..	..	147,048
1896 to 1900	48,692	33,645	17,724	12,562	3,402	6,373	..	..	122,398
1901 to 1905	51,179	34,332	16,628	12,149	8,283	7,955	-223	..	130,303
1906 to 1910	64,127	38,948	21,415	14,500	10,762	8,703	-264	..	158,191
1911 to 1915	77,070	46,160	27,497	18,673	12,730	9,386	-201	78	191,393
1916 to 1920	72,030	41,388	26,894	16,413	9,787	8,673	-125	75	175,135
1921 ..	16,515	9,626	6,241	3,467	1,779	1,778	-31	12	39,387
1861 to 1921	595,870	459,247	185,629	171,191	54,188	74,857	-814	165	1,540,303
FEMALES.									
1861 to 1865	26,343	39,615	3,566	9,987	1,105	4,608	..	..	85,224
1866 to 1870	30,327	40,919	7,571	11,223	1,301	4,451	..	..	95,792
1871 to 1875	35,567	41,472	9,706	10,944	1,255	4,192	..	..	103,136
1876 to 1880	40,276	37,551	12,291	14,608	1,585	4,699	..	..	111,010
1881 to 1885	50,204	39,833	15,262	18,033	1,738	6,364	..	..	131,434
1886 to 1890	62,090	48,131	24,238	17,320	2,609	7,228	..	..	161,616
1891 to 1895	63,930	53,190	25,757	16,792	3,376	7,781	..	..	170,826
1896 to 1900	57,107	40,474	24,037	13,443	7,054	6,718	..	..	148,833
1901 to 1905	59,163	39,831	22,910	12,701	11,468	8,027	28	..	154,128
1906 to 1910	71,297	42,629	26,048	14,754	13,354	8,522	33	..	176,637
1911 to 1915	87,074	50,258	33,463	19,318	16,262	9,604	62	78	216,119
1916 to 1920	81,799	42,886	32,273	16,825	13,185	8,821	135	72	195,996
1921 ..	18,095	9,800	6,946	3,525	2,548	1,780	30	11	42,735
1861 to 1921	683,272	526,589	244,068	179,473	76,840	82,795	288	161	1,793,486

(a) Excess of births over deaths. (b) Including Federal Territory prior to 1911. (c) Including Northern Territory prior to 1901. (d) Included in South Australia prior to 1901. (e) Part of New South Wales prior to 1911.

NOTE.—Minus sign (—) denotes excess of deaths over births.

NATURAL INCREASE(a) OF THE POPULATION

OF STATES, TERRITORIES, AND COMMONWEALTH, FROM 1861 TO 1921—*continued.*

Period.	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North- ern.	Federal.	
	(b)			(c)			(d)	(e)	
PERSONS.									
1861 to 1865	48,398	73,901	6,010	19,632	1,870	8,501	..	..	158,312
1866 to 1870	56,177	75,916	13,310	22,104	2,055	7,732	..	..	177,294
1871 to 1875	65,634	76,604	16,410	20,923	1,965	7,269	..	..	188,805
1876 to 1880	74,316	69,536	20,251	28,284	2,608	8,171	..	..	203,166
1881 to 1885	92,862	73,447	23,248	35,002	2,740	11,648	..	..	238,947
1886 to 1890	116,843	87,659	42,110	33,839	4,364	13,321	..	..	298,136
1891 to 1895	120,764	98,796	46,282	32,550	4,812	14,670	..	..	317,874
1896 to 1900	105,799	74,119	41,761	26,005	10,456	13,091	..	..	271,231
1901 to 1905	110,342	74,163	39,538	24,850	19,751	15,982	-195	..	284,431
1906 to 1910	135,424	81,577	47,463	29,254	24,116	17,225	-231	..	334,828
1911 to 1915	164,144	96,418	60,960	37,991	28,992	18,990	-139	156	407,512
1916 to 1920	153,829	84,274	59,167	33,238	22,972	17,494	10	147	371,131
1921 ..	34,610	19,426	13,187	6,932	4,327	3,558	-1	23	82,122
1861 to 1921	1,279,142	985,836	429,697	350,664	131,028	157,652	-556	326	3,333,789

(a) Excess of births over deaths. (b) Including Federal Territory prior to 1911. (c) Including Northern Territory prior to 1901. (d) Included in South Australia prior to 1901. (e) Part of New South Wales prior to 1911.

NOTE.—Minus sign (—) denotes excess of deaths over births.

With two exceptions, viz., Tasmania for the period 1906 to 1910 and the Federal Territory for the period 1916 to 1920, the natural increase of females exceeded that of males throughout the years referred to in the foregoing table. The quinquennial period in which the largest natural increase of population took place was that of 1911–15, with a total for the Commonwealth of 407,512. For the individual States the quinquennia of maximum natural increase were as follows:—New South Wales, Queensland, South Australia, Western Australia, and Tasmania, 1911–15; and Victoria, 1891–5.

2. Comparison with other Countries.—Notwithstanding its comparatively low birth-rate, Australia has a high rate of natural increase, owing to the fact that its death-rate is a very low one. The following table furnishes a comparison between the average rates per annum of natural increase for some of the principal countries of the world for which such information is available, and those for the several States of the Commonwealth and the Dominion of New Zealand:—

NATURAL INCREASE PER ANNUM PER 1,000 OF MEAN POPULATION.

(VARIOUS COUNTRIES.)

Country.	Natural Increase per 1,000.	Country.	Natural Increase per 1,000.
Australasia (1917–21)—		Europe— <i>continued.</i>	
Tasmania	16.76	England and Wales	(i) 7.20
Queensland	16.69	Sweden	(h) 6.60
New South Wales	15.40	Spain	(g) 4.60
Commonwealth	14.26	Ireland	(h) 3.89
South Australia	13.95	France	(b) 0.43
Western Australia	13.56	Asia—	
New Zealand	13.29	Japan	(j) 12.26
Victoria	11.56	Ceylon	(g) 8.92
Europe—		Africa—	
Denmark	(c) 12.87	Union of South Africa	
Netherlands	(h) 12.25	(whites only)	(f) 17.62
Norway	(c) 11.82	America—	
Finland	(c) 9.14	Province of Quebec	(e) 20.09
Scotland	(i) 8.54	Jamaica	(e) 12.56
Italy	(e) 8.11	Canada (Province of	
Switzerland	(d) 7.89	Ontario)	(g) 10.27
Belgium	(a) 7.83	Chile	(g) 10.27

(a) 1908–12. (b) 1910–14. (c) 1911–15. (d) 1912–16. (e) 1913–17. (f) 1914–18. (g) 1915–19. (h) 1916–20. (i) 1917–21. (j) 1914–17.

The graphs of natural increase for each of the States, as well as for the Commonwealth, are shewn on page 1072.

3. Net Immigration.—The other factor of increase in the population, viz., the excess of arrivals over departures, known as "net immigration," is, from its nature, much more subject to marked and extensive variation than is the factor of "natural increase." These variations are due to numerous causes, many of which have already been referred to in dealing with the influences which affect the growth of population. An important cause, not yet referred to, is that of assisted immigration. The number of persons so introduced varies considerably in different years.

**NET IMMIGRATION, OR EXCESS OF ARRIVALS OVER DEPARTURES,
STATES, TERRITORIES, AND COMMONWEALTH, FROM 1861 TO 1921 INCLUSIVE.**

Period.	States.						Territories.		Commonwealth.
	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	North- ern. (b)	Federal. (c)	
MALES.									
1861 to 1865	2,984	15,871	34,031	10,270	3,213	2,997	..	..	31,630
1866 to 1870	23,331	13,516	10,190	242	1,182	313	..	..	47,714
1871 to 1875	20,346	8,093	26,236	3,833	80	1,916	..	..	40,326
1876 to 1880	48,378	5,696	13,892	25,056	179	2,418	..	..	83,869
1881 to 1885	70,996	19,925	54,867	1,982	2,701	1,860	..	..	148,367
1886 to 1890	29,345	51,894	18,514	12,895	6,411	2,648	..	..	95,917
1891 to 1895	8,671	33,192	5,088	1,493	39,443	2,857	..	..	15,660
1896 to 1900	854	39,805	8,095	8,239	36,953	2,905	..	..	945
1901 to 1905	15,671	37,971	495	11,031	28,127	1,771	697	..	7,177
1906 to 1910	11,157	9,400	12,291	10,590	711	5,784	366	..	37,999
1911 to 1915	38,268	1,518	13,343	4,249	63	9,587	1,049	90	40,315
1916 to 1920	22,933	18,162	3,933	7,931	3,913	55	550	30	48,471
1921 ..	102	1,474	2,172	3,378	195	989	162	54	7,608
1861 to 1921	291,174	24,739	203,147	20,927	114,437	14,460	726	6	589,754
FEMALES.									
1861 to 1865	8,578	21,627	18,824	5,993	952	1,358	..	..	54,516
1866 to 1870	9,928	16,702	4,851	1,207	517	500	..	..	32,705
1871 to 1875	9,395	2,498	11,187	774	18	2,500	..	..	21,336
1876 to 1880	25,081	169	7,792	12,977	130	462	..	..	46,273
1881 to 1885	38,867	7,861	27,526	100	957	562	..	..	75,673
1886 to 1890	23,220	34,337	14,811	11,310	1,768	42	..	..	62,784
1891 to 1895	12,793	13,656	422	1,964	7,758	1,705	..	..	6,732
1896 to 1900	143	23,777	927	7,627	32,043	2,009	..	..	3,432
1901 to 1905	1,566	21,984	2,398	8,448	22,293	726	81	..	9,616
1906 to 1910	9,390	10	7,780	4,403	1,867	4,023	148	..	19,279
1911 to 1915	48,569	25,249	12,545	5,467	10,539	5,616	273	118	97,144
1916 to 1920	21,162	1,122	3,281	3,931	4,666	2,182	48	34	22,662
1921 ..	1,648	1,901	2,412	1,056	222	1,019	92	15	8,181
1861 to 1921	210,054	51,621	109,116	10,287	74,362	14,600	162	99	441,101
PERSONS.									
1861 to 1865	11,562	5,656	52,855	16,263	4,165	4,355	..	..	86,146
1866 to 1870	33,309	30,218	15,041	965	1,699	813	..	..	80,419
1871 to 1875	29,741	5,595	37,423	4,607	98	4,416	..	..	61,662
1876 to 1880	73,459	5,865	21,684	38,033	49	2,880	..	..	130,142
1881 to 1885	109,863	27,786	82,393	2,082	3,658	2,422	..	..	224,040
1886 to 1890	52,565	86,231	33,325	24,205	8,179	2,606	..	..	158,701
1891 to 1895	21,464	46,848	4,666	471	47,201	4,562	..	..	22,392
1896 to 1900	997	63,582	9,022	15,866	68,996	4,914	..	..	2,487
1901 to 1905	17,237	59,955	1,903	19,479	50,420	2,497	616	..	16,793
1906 to 1910	20,547	9,410	20,071	14,993	2,578	9,807	514	..	57,278
1911 to 1915	86,837	26,767	25,888	1,218	10,602	15,203	1,322	28	137,459
1916 to 1920	44,095	19,284	7,214	11,862	8,579	2,237	502	4	71,133
1921 ..	1,546	3,375	4,584	4,434	27	2,008	254	69	15,789
1861 to 1921	501,228	26,882	312,263	31,214	188,799	29,060	564	93	1,030,855

(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900.

(c) Part of New South Wales prior to 1911.

NOTE.—The minus sign (—) signifies that the number of departures was in excess of arrivals.

During the period 1861-1921, viz., 61 years, the gain to the Commonwealth population by excess of arrivals over departures was 1,030,855 persons, while the gain by excess of births over deaths for the same period was 3,333,789. That is, 23.6 per cent. of the increase for the Commonwealth during the past 61 years has been due to "net immigration" and 76.4 per cent. to "natural increase." In regard to the contribution by individual States to the total net immigration of 1,030,855, every State has shewn an increase with the exception of Tasmania, where the loss by emigration has been 29,060.

The quinquennial period in which the greatest net immigration to the Commonwealth occurred was that of 1881-5 with a total of 224,040, whilst in the period 1901-5, the departures exceeded the arrivals by 16,793. The quinquennial periods in which maximum net immigration occurred in the several States were as follows:—New South Wales and Queensland 1881-5, Victoria 1886-90, South Australia 1876-80, Western Australia and Tasmania 1896-1900. In all the States quinquennial periods have occurred in which the departures for the five years have exceeded the arrivals. The periods in which such net emigration from the several States was greatest were as follows:—New South Wales and Victoria 1896-1900, Queensland 1901-5, South Australia 1886-90, Western Australia 1916-1919, and Tasmania 1911-15. In the period 1916-20, a net immigration of 71,133 was experienced, all the States having contributed to that total except Western Australia and Tasmania, where there was an excess of emigration. The smallness of the gain by immigration during the period 1916-20 was largely due to the restrictions placed on travelling during the war period.

4. **Total Increase.**—The total increase of the population is found by the combination of the natural increase with the net immigration.

In the following table are set out the figures shewing the total increase in each quinquennium from 1861 to 1920 and for the year 1921:—

TOTAL INCREASE OF THE POPULATION OF THE STATES, TERRITORIES, AND COMMONWEALTH FROM 1861 TO 1921.

Period.	States.						Territories.		Commonwealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North-ern.	Federal.	
				(a)			(b)	(c)	
MALES.									
1861 to 1865	25,039	18,415	36,475	19,915	3,978	896	..	..	104,718
1866 to 1870	49,231	48,513	15,929	10,639	1,936	2,968	..	..	129,216
1871 to 1875	50,413	27,039	32,940	13,812	630	1,161	..	..	125,995
1876 to 1880	82,418	26,289	21,852	38,732	844	5,890	..	..	176,025
1881 to 1885	113,654	53,539	62,853	14,987	3,703	7,144	..	..	255,880
1886 to 1890	84,098	91,422	36,386	3,624	8,166	8,741	..	..	232,437
1891 to 1895	65,505	12,414	25,613	14,265	40,879	4,032	..	..	162,708
1896 to 1900	47,838	- 6,160	25,819	4,323	40,355	9,278	..	..	121,453
1901 to 1905	66,850	- 3,639	17,123	1,118	36,410	6,184	- 920	..	123,126
1906 to 1910	75,284	48,348	33,706	25,090	11,473	2,919	- 630	..	196,190
1911 to 1915	115,338	47,678	40,840	14,424	12,793	- 201	848	- 12	231,708
1916 to 1920	94,963	59,550	30,827	24,344	5,874	8,618	- 675	105	223,606
1921 ..	16,413	11,100	8,413	6,845	1,584	2,767	- 193	66	46,995
1861 to 1921	887,044	434,508	388,776	192,118	168,625	60,397	- 1,570	159	2,130,057

(a) Including Northern Territory up to 1900. (b) Included in South Australia up to 1900.
(c) Part of New South Wales prior to 1911.

NOTE.—The minus sign (—) denotes decrease.

TOTAL INCREASE OF THE POPULATION OF THE STATES, TERRITORIES,
AND COMMONWEALTH FROM 1861 TO 1921—*continued.*

Period.	States.						Territories.		Commonwealth.
	N.S.W.	Victoria.	Q'land.	S. Aust. (a)	W. Aust.	Tas.	North- ern. (b)	Federal. (c)	
FEMALES.									
1861 to 1865	34,921	61,142	22,390	15,980	2,057	3,250	..	..	139,740
1866 to 1870	40,255	57,621	12,422	12,430	1,818	3,951	..	..	128,497
1871 to 1875	44,962	43,970	20,893	11,718	1,237	1,692	..	..	124,472
1876 to 1880	65,357	37,382	20,083	27,585	1,715	5,161	..	..	157,283
1881 to 1885	89,071	47,694	42,788	17,933	2,695	6,926	..	..	207,107
1886 to 1890	85,310	82,468	39,049	6,010	4,377	7,186	..	..	224,400
1891 to 1895	76,723	39,534	25,335	18,756	11,134	6,076	..	..	177,558
1896 to 1900	56,964	16,697	24,964	5,816	39,097	8,727	..	..	152,265
1901 to 1905	60,729	17,847	20,512	4,253	33,761	7,301	109	..	144,512
1906 to 1910	80,687	42,639	33,828	19,157	15,221	4,499	115	..	195,916
1911 to 1915	135,643	75,507	46,008	24,785	26,801	3,988	335	196	313,263
1916 to 1920	102,961	44,008	35,554	20,756	8,519	6,639	183	38	218,658
1921 ..	19,743	11,701	9,358	4,581	2,770	2,799	62	26	50,916
1861 to 1921	893,326	578,210	353,184	189,760	151,202	68,195	450	260	2,234,587
PERSONS.									
1861 to 1865	59,960	79,557	58,865	35,895	6,035	4,146	..	..	244,458
1866 to 1870	89,486	106,134	28,351	23,069	3,754	6,919	..	..	257,713
1871 to 1875	95,375	71,009	53,833	25,530	1,867	2,853	..	..	250,467
1876 to 1880	147,775	63,671	41,935	66,317	2,559	11,051	..	..	333,308
1881 to 1885	202,725	101,233	105,641	32,920	6,398	14,070	..	..	462,987
1886 to 1890	169,408	173,890	75,435	9,634	12,543	15,927	..	..	456,837
1891 to 1895	142,228	51,948	50,948	33,021	52,013	10,108	..	..	340,266
1896 to 1900	104,802	10,537	50,783	10,139	79,452	18,005	..	..	273,718
1901 to 1905	127,579	14,208	37,635	5,371	70,171	13,485	811	..	267,638
1906 to 1910	155,971	90,987	67,534	44,247	26,694	7,418	745	..	392,106
1911 to 1915	250,981	123,185	86,848	39,209	39,594	3,787	1,183	184	544,971
1916 to 1920	197,924	103,558	66,381	45,100	14,393	15,257	492	143	442,264
1921 ..	33,156	22,801	17,771	11,426	4,354	5,536	255	92	97,911
1861 to 1921	1,780,370	1,012,718	741,910	381,878	319,827	128,592	1,120	419	4,364,644

(a) Including Northern Territory up to 1900.

(b) Included in South Australia up to 1900.

(c) Part of New South Wales prior to 1911.

NOTE.—The minus sign (—) denotes decrease.

As regards the Commonwealth as a whole, the greatest increase in any quinquennium up to 1910 was that for the period 1881–5, viz., 462,987. These figures were, however, closely approached by those for the succeeding quinquennium, viz., 456,837. The rate of increase fell off, however, in the three subsequent quinquennia, the increase for the years 1901–5 being 267,638. In the following quinquennium an improvement set in, the increase in that period being 392,106. This was followed by a further improvement in the quinquennium 1911–15, the first three years of which gave increases of 148,785, 172,933, and 147,298 respectively. In the two succeeding years a falling-off was recorded, but this must be taken as having been caused by the war, there having been an excess of departures over arrivals in the two years of 8,075 and 84,322 respectively. In spite of this adverse influence, the increase for the quinquennium 1911–15 was 544,971, the highest quinquennial increase yet recorded for the Commonwealth. In 1916 the departures exceeded the arrivals by 128,651 and in 1917 by 17,775, but during 1918 and 1919 the excess of arrivals was 23,396 and 166,384 respectively, due mainly to the return of the Australian Imperial Forces. Although in 1920 the increase by migration totalled only 27,779, yet the total increase in population for this quinquennium was 442,264.

As regards the individual States the maximum increases in any quinquennium are as follows:—New South Wales, 250,981, in 1911–15; Victoria, 173,890, in 1886–90; Queensland, 105,641, in 1881–5; South Australia (including the Northern Territory), 66,317, in 1876–80; Western Australia, 79,452, in 1896–1900; Tasmania, 18,005, in 1896–1900.

As regards the minimum quinquennial increases, it will be seen that they have occurred as under:—New South Wales, 59,960, in 1861–5; Victoria, 10,537, in 1896–1900; Queensland, 28,351, in 1866–70; South Australia, 5,371, in 1901–5; Western Australia, 1,867, in 1871–5; Tasmania, 2,853, in 1871–5.

The graphs shewing net increase, both for the Commonwealth as a whole and for each of the States, will be found on pages 1070 and 1071.

5. Rates of Increase.—(i) *Rates for various Countries.* The table hereunder furnishes particulars concerning rates of increase in population for the Commonwealth, its component States, and other countries:—

RATES OF INCREASE IN POPULATION, 1881 TO 1921 (VARIOUS COUNTRIES).

Countries.	Mean Annual Rate of Increase in Population during period—							
	1881 to 1886.	1886 to 1891.	1891 to 1896.	1896 to 1901.	1901 to 1906.	1906 to 1911.	1911 to 1916.	1916 to 1921.
	%	%	%	%	%	%	%	%
AUSTRALASIA—								
Commonwealth ..	3.86	3.06	1.86	1.49	1.38	2.03	1.95	1.99
New South Wales (a) ..	4.83	3.23	1.99	1.57	1.99	2.03	2.61	2.17
Victoria ..	2.60	3.12	0.37	0.52	0.18	2.17	1.38	1.68
Queensland ..	8.42	3.80	2.49	2.25	1.35	2.76	2.20	2.21
South Australia (b) ..	1.41	1.15	1.63	0.77	0.27	2.46	1.52	2.34
Western Australia ..	6.13	5.54	20.81	7.25	6.22	2.43	1.76	1.27
Tasmania ..	2.18	2.87	1.06	1.83	1.33	0.65	0.58	1.84
New Zealand ..	3.31	1.47	2.41	1.98	2.86	2.56	1.61	2.32
EUROPE—								
England and Wales ..	1.11	1.11	1.15	1.15	1.04	1.04	−0.95	1.89
Scotland ..	0.75	0.75	1.06	1.06	0.55	0.56	0.31	0.24
Ireland ..	−0.95	−0.94	−0.60	−0.43	−0.22	−0.06	−0.21	0.58
Austria ..	0.73	0.83	0.79	1.05	0.87	0.86	(c) 0.80	(h)
Belgium ..	1.13	0.75	1.15	0.92	1.26	0.69	(d) 0.99	..
Denmark ..	1.05	0.87	0.99	1.32	1.12	1.26	1.20	2.13
Finland ..	1.42	1.51	1.20	1.41	1.36	1.43	1.18	0.25
France ..	0.34	0.06	0.09	0.24	0.15	0.16	(d) 0.12	(h)
Germany ..	0.74	1.09	1.17	1.51	1.46	1.36	(e) 1.24	(h)
Hungary ..	1.09	1.01	0.92	1.03	0.77	0.84	(c) 0.84	(h)
Italy ..	0.66	0.71	0.68	0.61	0.52	0.80	1.16	..
Netherlands ..	1.32	1.03	1.28	1.30	1.53	1.22	1.72	1.20
Norway ..	0.36	0.54	0.96	1.31	0.52	0.66	(f) 0.98	..
Prussia ..	0.79	1.15	1.29	1.59	1.57	1.48	(d) 1.29	(h)
Rumania ..	1.77	1.34	1.15	1.41	1.46	1.48	(f) 2.77	(h)
Serbia ..	2.30	2.08	1.37	1.57	1.52	1.55	(c) 1.72	(h)
Spain ..	0.54	0.48	0.45	0.45	0.52	0.87	0.66	(g) 0.34
Sweden ..	0.57	0.40	0.61	0.86	0.61	0.84	0.70	0.64
Switzerland ..	0.38	0.40	1.22	1.10	1.28	1.17	0.81	..
ASIA—								
Ceylon ..	0.54	1.35	1.41	2.03	1.62	1.20	1.71	1.28
Japan ..	0.96	1.12	0.96	1.25	1.29	1.08	1.42	0.37
AMERICA								
Canada ..	1.10	1.08	0.97	1.19	2.99	2.99	(e) 3.87	..
Chile ..	2.97	0.72	2.66	0.90	1.53	1.56	1.66	0.07
Jamaica ..	0.77	1.37	1.66	1.72	1.63	0.28	1.36	(g) 0.62
United States ..	2.27	2.15	1.93	2.02	2.00	1.82	1.67	1.21

(a) Including Federal Territory.

(b) Including Northern Territory.

(c) 1911 to 1912.

(d) 1911 to 1913.

(e) 1911 to 1914.

(f) 1911 to 1915.

(g) 1916–1920.

(h) Not available owing to changes of boundaries.

NOTE.—The minus sign (−) denotes decrease.

(ii) *Variations in the Commonwealth Rate.* During the twenty-five years 1881–1906 the annual rate of increase in the population of the Commonwealth exhibited a marked decline, falling from an average of 3.86 per cent. for the five years 1881–6 to an average of 1.38 for 1901–6. During the succeeding quinquennium, however, an improvement took place, the rate of increase being 2.03. In the quinquennia 1911–1916 and 1916–1921 there was a decline owing to the war. As regards the separate States of the Commonwealth, it will be seen that though the rates of increase for the quinquennium 1911–16 were in all cases, except that of South Australia, lower than those for the quinquennia 1881–6 and 1886–91, it is only in the case of Western Australia that the 1911–16 rate represents the minimum for the seven quinquennia under review. During the quinquennium 1916–21 the Commonwealth as a whole experienced a higher rate of increase than for the previous quinquennium.

(iii) *Comparison of Rates of Increase.* It may be noted that the highest rates of increase for the period 1911–16 are those for Canada, Rumania, and the Commonwealth of Australia in the order named. The Netherlands and Serbia rank next in order.

6. *Density of Population.*—From one aspect, population may be less significant in respect of its absolute amount than in respect of the density of its distribution. The Commonwealth of Australia, with an area of 2,974,581 square miles, and a population on 31st December, 1921, of 5,570,229, including aboriginals, has a density of only 1.87 persons to the square mile, and is therefore the most sparsely populated of the civilised countries of the world. For the other continents the densities are approximately as follows:—Europe, 123; Asia, 61; Africa, 12; North and Central America, 17; and South America, 9. The population of the Commonwealth has thus about 21 per cent. of the density of that of South America; about 16 per cent. of that of Africa; about 11 per cent. of that of North and Central America; about 3 per cent. of that of Asia; and about $1\frac{1}{2}$ per cent. of that of Europe.

Particulars concerning the number and density of the population of the various countries of the world for the latest dates for which such information is available are given in the following table. These figures have in the main been derived from the 1922 issue of the "Statesman's Year Book," and in some instances, more particularly in the case of Africa, must be considered as rough approximations only, complete data not being obtainable.

NUMBER AND DENSITY OF THE POPULATION OF THE VARIOUS COUNTRIES OF THE WORLD.

Country.	Population.		Country.	Population.	
	Number.	Density. (a)		Number.	Density. (a)
Continents—			EUROPE—continued.		
Europe	474,946,262	123.10	Austria	6,131,445	199.29
Asia	1,012,576,098	60.61	Portugal	5,957,985	167.88
Africa	143,038,534	11.77	Sweden	5,903,762	34.12
North & Central America and the West Indies ..	145,854,854	17.06	Greece	5,447,077	129.90
South America	64,258,110	8.73	Bulgaria	4,861,439	119.57
Australasia & Polynesia ..	8,443,070	2.47	Lithuania	4,800,000	31.07
Total	1,849,116,838	35.52	Switzerland	3,880,320	242.88
			Finland	3,335,237	22.30
			Denmark	3,289,195	191.85
			Norway	2,645,305	21.17
			Turkey	1,891,000	173.77
			Estonia	1,750,000	75.56
			Latvia	1,503,193	60.13
			Albania	1,400,000	121.74
			Danzig	351,380	495.62
			Luxemburg	263,824	264.05
			Malta	224,859	1,905.58
			Iceland	94,690	2.38
			Fiume	49,806	6,225.75
			Monaco	22,956	2,869.50
			Gibraltar	17,690	8,845.00
			San Marino	12,027	316.50
			Liechtenstein	10,716	164.88
			Andorra	5,231	27.39
			Total	474,946,262	123.10
Europe—					
Russia	122,288,160	73.78			
Germany	59,857,283	326.25			
United Kingdom	47,307,601	388.94			
Italy	40,070,161	362.19			
France	39,209,766	184.38			
Poland	26,886,399	180.39			
Spain (incl. Canarv and Balearic Islands) ..	20,783,844	106.70			
Rumania	17,393,149	142.24			
Czecho-Slovakia	13,595,816	250.55			
Jugo-Slavia	11,337,686	118.56			
Hungary	7,840,832	219.91			
Belgium	7,684,272	654.31			
Netherlands	6,841,155	543.73			

(a) Number of persons per square mile.

NUMBER AND DENSITY OF THE POPULATION OF THE VARIOUS COUNTRIES OF THE WORLD—*continued.*

Country.	Population.		Country.	Population.	
	Number.	Density. (a)		Number.	Density (a)
Asia—			AFRICA—<i>continued.</i>		
China & Dependencies..	436,094,953	111.43	Senegambia and Niger	2,400,000	6.54
British India ..	247,138,396	226.09	Tunis ..	2,093,939	41.88
Japan & Dep. (incl. Korea)	77,606,154	297.03	Gold Coast & Protectorate	2,029,750	25.37
Pendatory Indian States	71,936,736	101.38	Liberia ..	2,000,000	50.00
Dutch East Indies ..	49,161,047	87.53	French Guinea ..	1,851,200	19.44
Russia in Asia ..	21,046,008	3.56	Rhodesia ..	1,765,000	4.01
Philippine Islands ..	10,350,730	90.48	Ivory Coast ..	1,545,680	12.67
Persia ..	9,500,000	15.13	French Cameroon ..	1,500,000	9.01
Siam ..	9,121,000	45.86	Sierra Leone and Protect.	1,403,132	45.26
Turkey in Asia ..	8,456,900	30.95	Senegal ..	1,225,523	16.54
Tonking ..	6,470,250	159.64	Nyassaland Protectorate	1,201,519	30.36
Afghanistan ..	6,380,500	26.04	British Cameroon ..	1,040,000	33.55
Annam ..	5,731,183	144.15	Tripolitania & Cyrenaica	1,000,000	2.46
Nepal ..	5,600,000	103.70	Dahomey ..	860,580	10.28
Arabia (Independent) ..	5,500,000	5.50	French Sahara ..	800,000	0.52
Ceylon ..	4,504,283	176.77	Rio de Oro and Adrar ..	800,000	7.33
Cochin China ..	3,452,248	158.92	Territory of Niger ..	700,225	2.02
Syria ..	3,000,000	26.10	Italian Somaliland ..	650,000	4.66
Bokhara ..	3,000,000	37.97	Spanish Morocco ..	600,000	77.92
Mesopotamia ..	2,849,282	19.89	Basutoland ..	500,544	42.72
Smyrna ..	2,500,000	96.90	Togoland (British) ..	500,000	39.68
Kurdistan and Armenia			Togoland (French) ..	500,000	22.84
(Turkish) ..	2,470,900	34.32	Eritrea ..	405,681	8.86
Georgia ..	2,372,403	92.10	Mauritius and Depend.	376,108	464.90
Azerbaijan ..	2,096,973	61.73	British Somaliland ..	300,000	4.41
Cambodia ..	2,000,000	34.54	Portuguese Guinea ..	289,000	20.73
Far Eastern Republic ..	1,811,725	2.78	Mauretania ..	260,000	0.75
Kiau Chau ..	1,427,000	523.52	Gambia & Protectorate	248,000	59.99
Federated Malay States	1,315,700	47.83	South-west Africa ..	237,237	0.74
Armenia ..	1,214,391	79.68	Spanish Guinea ..	200,000	21.12
Malay Protectorate ..	1,123,264	47.83	Zanzibar ..	196,733	192.88
Straits Settlements ..	881,939	551.21	Réunion ..	173,190	178.55
British North Borneo and			Bechuanaland Protect.	152,983	0.56
Sarawak ..	808,183	11.06	Cape Verde Islands ..	149,793	101.21
Laos ..	800,000	8.29	Swaziland ..	133,563	20.00
Palestine ..	770,000	85.56	Comoro and Mayotte ..	95,617	66.40
Hong Kong and Depend.	625,166	1,598.89	French Somali Coast ..	65,000	11.23
Goa, etc. ..	548,472	334.84	St. Thomas & Prince Is.	58,907	163.63
Khiva ..	519,000	21.62	Seychelles ..	24,811	159.04
Oman ..	500,000	6.10	Fernando Po, etc. ..	23,844	29.29
Timor, etc. ..	377,815	51.54	Ifni ..	20,000	20.73
Cyprus ..	310,808	86.72	St. Helena ..	3,747	79.72
French India ..	265,200	1,353.06	Ascension ..	250	7.35
Bhutan ..	250,000	12.50			
Kwang Chau Wang ..	168,000	884.21	Total ..	143,038,534	11.77
Wei-hai-wai ..	147,177	516.41			
Bahrain Islands ..	110,000	440.00			
Macao, etc. ..	74,866	18,716.50	North & Central America &		
Maldiv Islands ..	70,000	608.70	West Indies—		
Aden and Dependencies	54,923	6.10	United States ..	103,710,620	35.55
Brunei ..	25,454	6.36	Mexico ..	15,501,684	20.21
Andaman and Nicobar			Canada ..	9,030,000	2.42
Islands ..	24,973	8.63	Cuba ..	2,889,004	65.34
Sokotra ..	12,000	8.68	Haiti ..	2,500,000	245.00
Total ..	1,012,576,008	60.61	Guatemala ..	2,003,579	41.49
			Salvador ..	1,501,000	113.86
			Porto Rico ..	1,299,809	378.40
			San Domingo ..	897,405	46.42
			Jamaica ..	857,921	203.93
Africa—			Nicaragua ..	638,119	12.97
Belgian Congo ..	16,750,000	18.41	Honduras ..	637,114	14.39
Nigeria & Protectorate ..	16,250,000	48.95	Costa Rica ..	468,373	20.36
Egypt ..	13,387,000	38.25	Trinidad and Tobago	391,279	197.92
French Equat. Africa ..	9,000,000	9.16	Newfoundl'd & Labrador	267,330	1.64
Abyssinia ..	8,000,000	22.86	Martinique ..	244,439	634.91
Tanganyika Territory ..	7,659,898	20.99	Guadeloupe and Depend.	229,822	318.31
Union of South Africa ..	6,922,813	14.63	Barbados ..	198,336	1,194.80
Morocco ..	6,000,000	26.90	Windward Islands ..	178,471	338.65
Algeria ..	5,800,974	26.11	Leeward Islands ..	127,193	177.89
Angola ..	4,119,000	8.50	Alaska ..	55,036	0.09
Madagascar and adjacent			Curacao ..	53,702	133.26
Islands ..	3,545,575	15.55	Bahamas ..	53,031	12.04
Anglo-Egyptian Sudan ..	3,400,000	3.35	British Honduras ..	45,317	5.27
Portuguese East Africa	3,120,000	7.29	Virgin Island of U.S.A.(b)	26,051	197.36
Uganda Protectorate ..	3,071,608	27.85	Bermudas ..	21,987	1,157.21
Upper Volta ..	3,000,100	19.43	Greenland (Danish) ..	13,449	0.29
Kenya Protectorate ..	2,630,000	10.73			

(a) Number of persons per square mile.

(b) Late Danish West Indies.

NUMBER AND DENSITY OF THE POPULATION OF THE VARIOUS COUNTRIES OF THE WORLD—continued.

Country.	Population.		Country.	Population.	
	Number.	Density. (a)		Number.	Density. (a)
NORTH & CENTRAL AMERICA & WEST INDIES—contd.			Australasia & Polynesia—		
Turks & Caicos Islands ..	5,612	25.05	Commonwealth of Australia ..	(b)5,570,229	1.87
Cayman Islands ..	5,253	59.02	New Zealand ..	(c)1,305,926	12.67
St. Pierre & Miquelon ..	3,918	42.13	Hawaii ..	255,912	39.68
			Papua ..	251,096	2.77
Total ..	145,854,854	17.06	Territory of New Guinea ..	232,697	2.60
			Dutch New Guinea ..	200,000	1.65
South America—			Fiji ..	162,604	21.87
Brazil (incl. Acre) ..	30,645,296	9.35	Solomon Islands (British) ..	150,750	13.70
Argentine Republic ..	8,693,516	7.54	New Hebrides ..	60,000	10.91
Colombia (excl. Panama) ..	5,855,077	13.23	New Caledonia and Dependencies ..	55,700	7.70
Peru ..	4,620,201	6.40	Marshall Islands, etc. (Japanese Mandate) ..	49,690	51.76
Chile ..	3,754,723	12.95	Western Samoa ..	37,051	29.41
Bolivia ..	2,839,970	5.62	French Establishments in Oceania ..	31,477	20.71
Venezuela ..	2,411,952	6.05	Gilbert and Ellice Islands ..	31,104	149.54
Ecuador ..	2,000,000	17.24	Tonga ..	23,562	61.20
Uruguay ..	1,494,953	20.72	Guam ..	14,246	63.32
Paraguay ..	1,000,000	5.69	Samoa (American) ..	8,324	81.61
Panama Republic ..	401,428	12.40	Nauru Island ..	1,955	165.42
British Guiana ..	297,691	8.33	Norfolk Island ..	717	55.15
Dutch Guiana ..	113,181	2.46			
French Guiana ..	49,009	1.53			
Panama Canal Zone ..	22,858	43.37			
Falkland Islands ..	2,255	0.35			
South Georgia ..	1,099	1.00			
Total ..	64,258,110	8.73	Total ..	8,443,070	2.47

(a) Number of persons per square mile. (b) Inclusive of an allowance of 60,000 for Aboriginal Natives. (c) Inclusive of Maoris and population of Cook and other Pacific Islands.

§ 5. Seasonal Variations of Population.

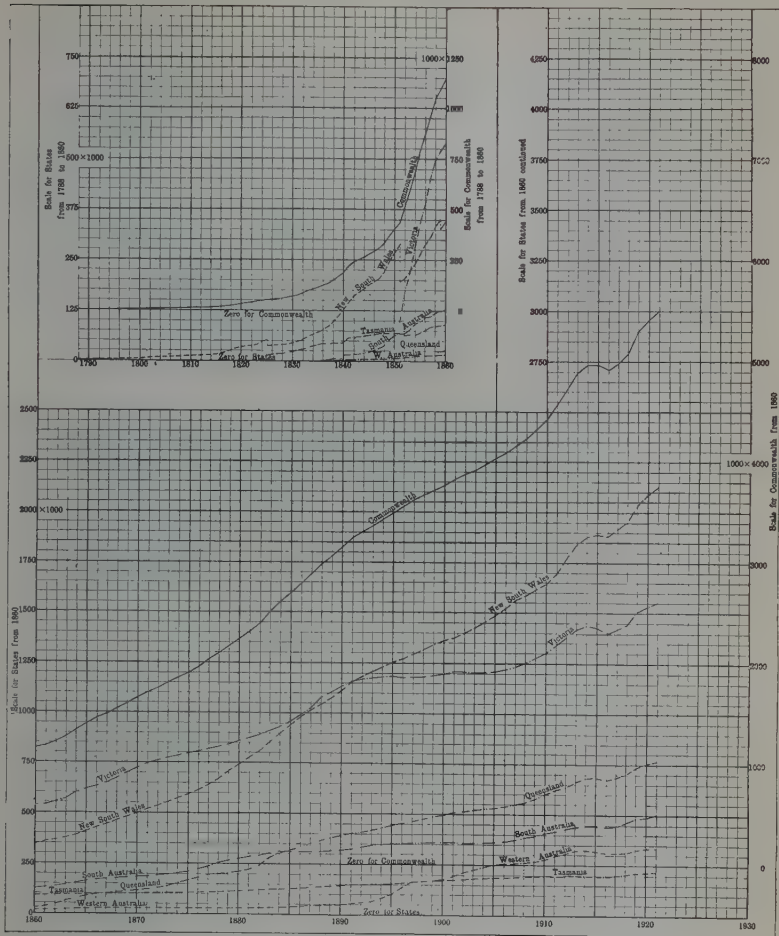
1. **Natural Increase.**—For the Commonwealth as a whole the natural increase of the population is greatest in the quarter ending 30th September, and least in that ending 30th June. The birth rate is usually at its highest in the September quarter and the death rate at its lowest in the March quarter. The average natural increase in population of the several States for each of the quarters, based upon the experience of the ten years 1912 to 1921, is given in the following table, from which it will be seen that the quarter in which the rate of natural increase was highest is that ended 31st March for New South Wales, that ended 30th June for Queensland and South Australia, that ended 30th September for Western Australia, and that ended 31st December for Victoria and Tasmania. The quarters shewing lowest rate of natural increase were that ended 30th June for New South Wales and Tasmania, that ended 30th September for Victoria, and that ended 31st December for the three remaining States.

AVERAGE QUARTERLY NATURAL INCREASE, STATES, TERRITORIES AND COMMONWEALTH, 1912 TO 1921.

State or Territory.	(a) Average Natural Increase for Quarter ended on last day of—								Average Natural Increase per Annum 1912-21.	
	March.		June.		September.		December.		Persons.	‰
	Persons.	‰	Persons.	‰	Persons.	‰	Persons.	‰		
New S. Wales	8,200	4.32	7,775	4.06	8,122	4.23	8,123	4.20	32,220	16.96
Victoria ..	4,498	3.15	4,523	3.15	4,512	3.14	4,698	3.26	18,231	12.76
Queensland ..	2,912	4.25	3,188	4.62	3,127	4.47	2,960	4.21	12,187	17.78
S. Australia ..	1,780	3.95	1,805	3.99	1,727	3.81	1,719	3.77	7,031	15.59
W. Australia ..	1,295	4.13	1,283	4.07	1,321	4.17	1,213	3.81	5,112	16.29
Tasmania ..	896	4.47	871	4.37	927	4.68	961	4.84	3,655	18.23
N. Territory ..	-4	-0.97	1	0.24	1	0.23	-6	-1.40	-8	-1.94
F. Territory ..	7	3.48	7	2.81	9	3.62	7	2.81	30	14.93
Commonwealth	19,584	3.93	19,453	3.88	19,746	3.92	19,675	3.89	78,458	15.74

(a) The symbol ‰ denotes "per thousand."

GRAPHS OF TOTAL POPULATION OF THE COMMONWEALTH OF AUSTRALIA
AND EACH STATE THEREIN, 1788 TO 1921.



(See Tables pages 1046 to 1048.)

EXPLANATION OF GRAPHS, 1788-1860.—The base of each small square represents two years' interval for both States and Commonwealth, and the vertical height for the States 25,000 persons, and for the Commonwealth 50,000 persons.

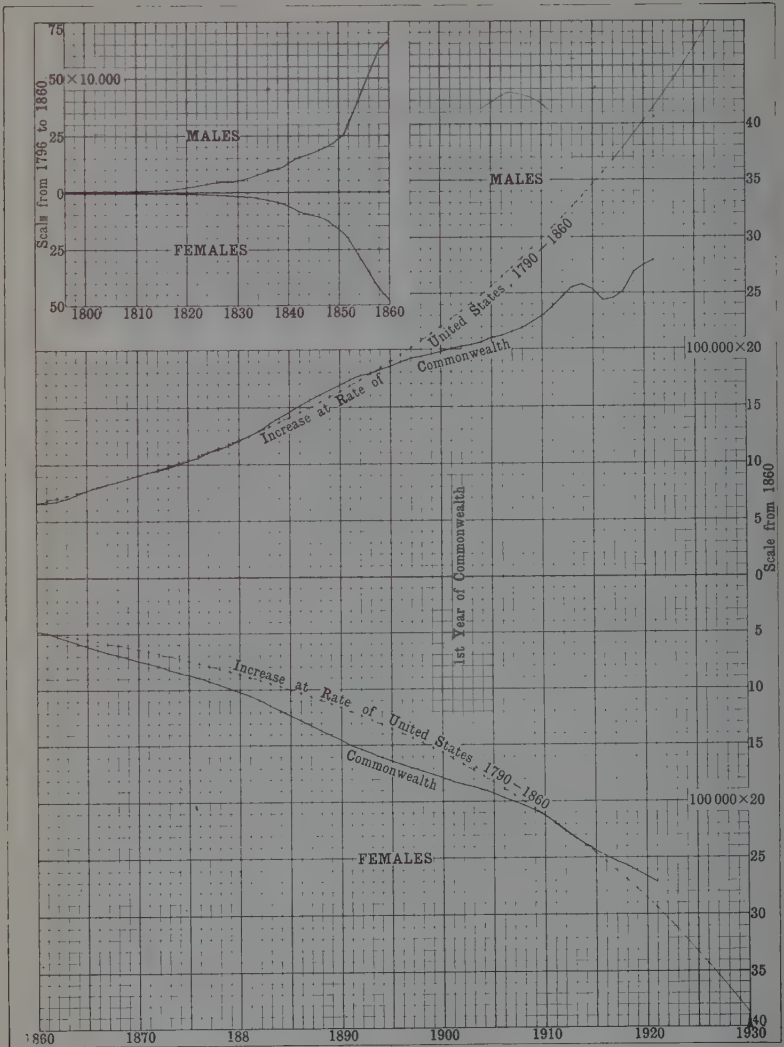
1860 onward.—The base of each small square represents one year's interval for both States and Commonwealth, and the vertical height for the States 50,000 persons, and for the Commonwealth 100,000 persons.

In both graphs the zero line for the States is the bottom line; for the Commonwealth it is the line marked "Zero for Commonwealth." The scales on the right above the Commonwealth zero line relate to the Commonwealth, and those on the left relate to the States.

Where the population falls suddenly the fall denotes the creation of a new colony, *e.g.*, New South Wales 1825, loses the whole population of Tasmania, then erected into a separate colony.

The curves are as follows:—Commonwealth, an unbroken line; New South Wales, — — —; Victoria, — — — —; Queensland, — — — — —; South Australia, — — — — —; Western Australia, — — — — —; Tasmania, — — — — —; the names on the curves also shew which State each represents.

GRAPHS OF MALE AND FEMALE POPULATIONS, COMMONWEALTH OF AUSTRALIA, 1796 TO 1921.



(See Tables pages 1046 to 1048.)

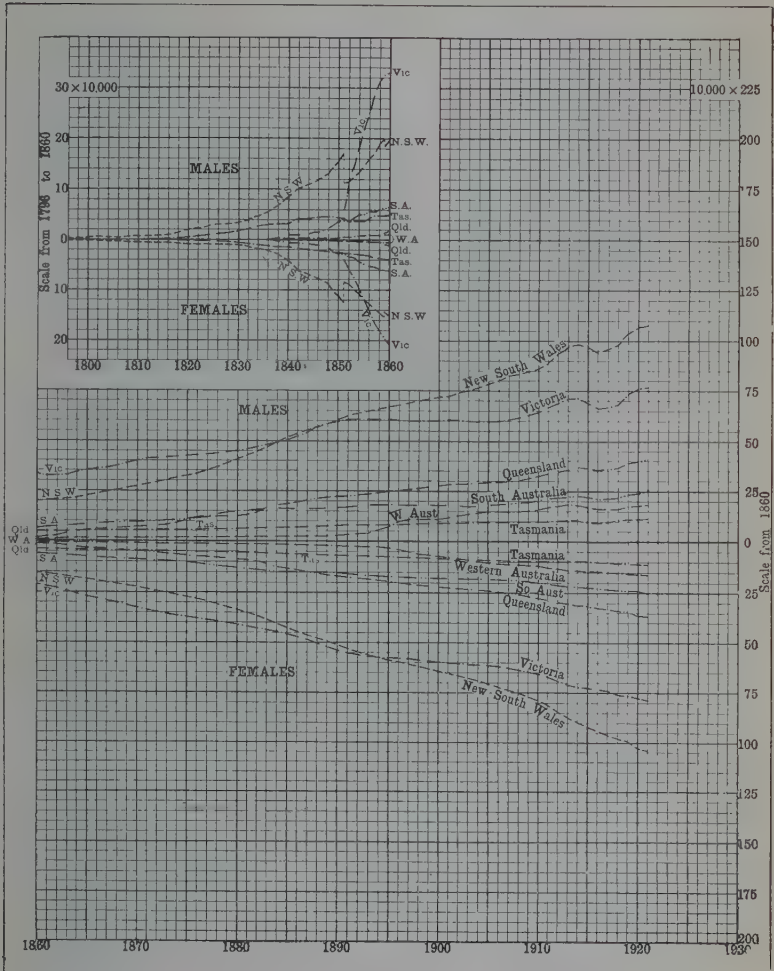
EXPLANATION OF GRAPHS.—1796-1860. The base of each small square represents two years' interval, and the vertical height 50,000 persons. The distances upward from the zero line denote the number of males, and downward the number of females.

1860 onward.—The base of each small square represents one year's interval, and the vertical height 100,000 persons.

From 1860 onward is shewn, for purposes of comparison, the manner in which the numbers of each sex in the Commonwealth would have grown from 1860, if, during that period, there had been in operation the rate of increase actually experienced in the United States from 1790 to 1860.

The asymmetry of the two series of graphs reveals the want of uniformity in the increase of the two sexes.

GRAPHS OF MALE AND FEMALE POPULATION OF THE STATES OF
AUSTRALIA, 1796 TO 1921.



(See Table page 1046.)

EXPLANATION OF GRAPHS.—1796-1860. The base of each small square represents two years' interval, and the vertical height 20,000 persons. The distances upward from the zero line represent the number of males, and downward the number of females.

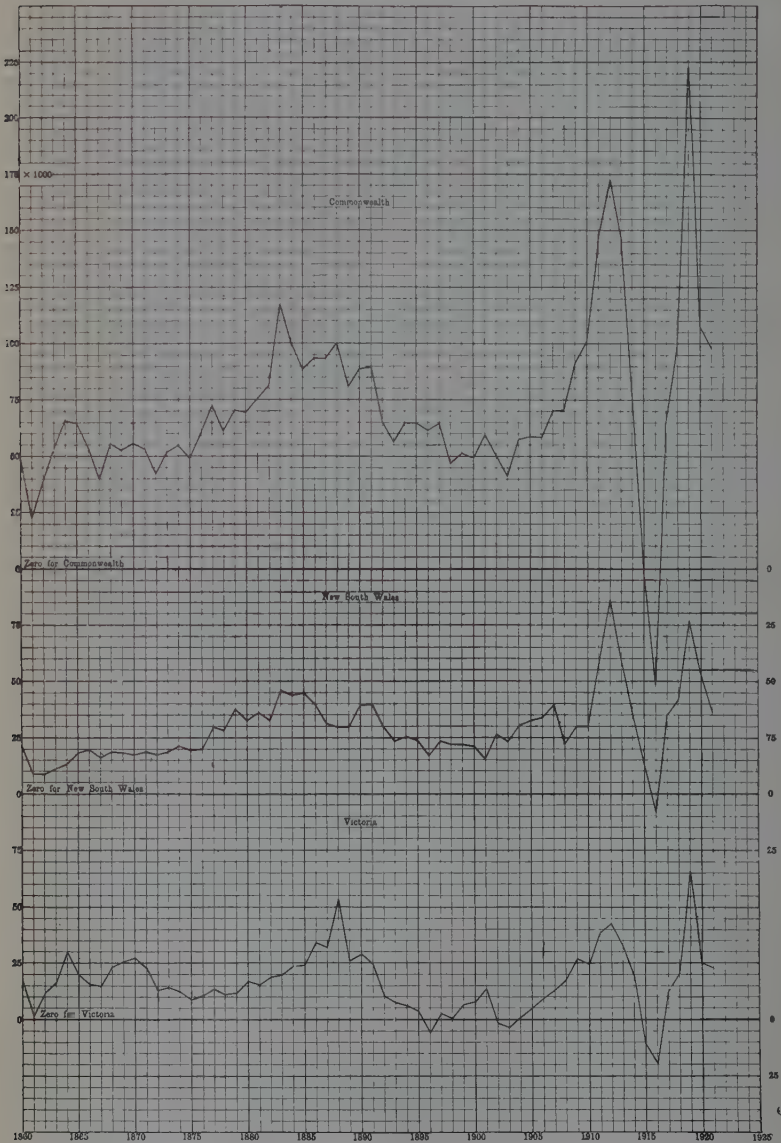
The sudden falls denote the creation of new colonies.

1860 onward.—The base of each small square represents one year's interval, and the vertical height 50,000 persons.

The names on the curves denote the States to which they refer, and the curves are as follows:—New South Wales, ———; Victoria, ———; Queensland, ———; South Australia, ———; Western Australia, ———; Tasmania, ———.

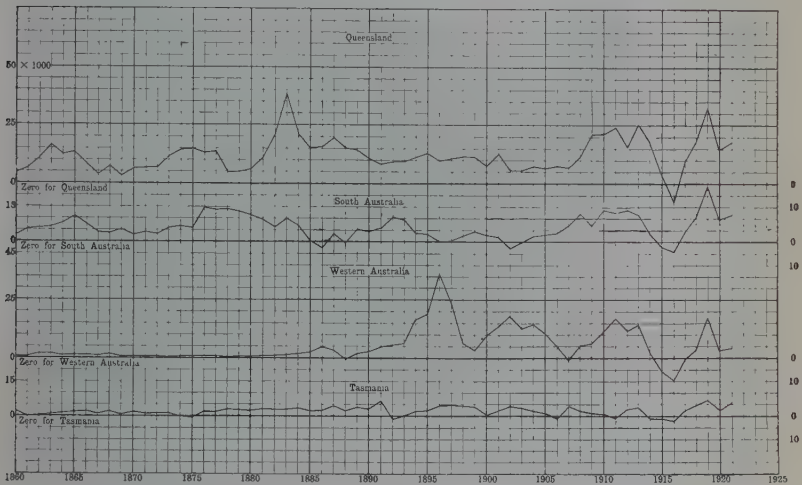
The asymmetry of the two series of graphs reveals the want of uniformity in the increase of the two sexes.

GRAPHS SHEWING TOTAL INCREASE OF POPULATION OF THE COMMONWEALTH OF AUSTRALIA AND THE STATES OF NEW SOUTH WALES AND VICTORIA, 1860 TO 1921.



(For explanation see foot of next page.)

GRAPHS SHEWING TOTAL INCREASE OF POPULATION OF THE STATES OF QUEENSLAND, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND TASMANIA, 1860 TO 1921.



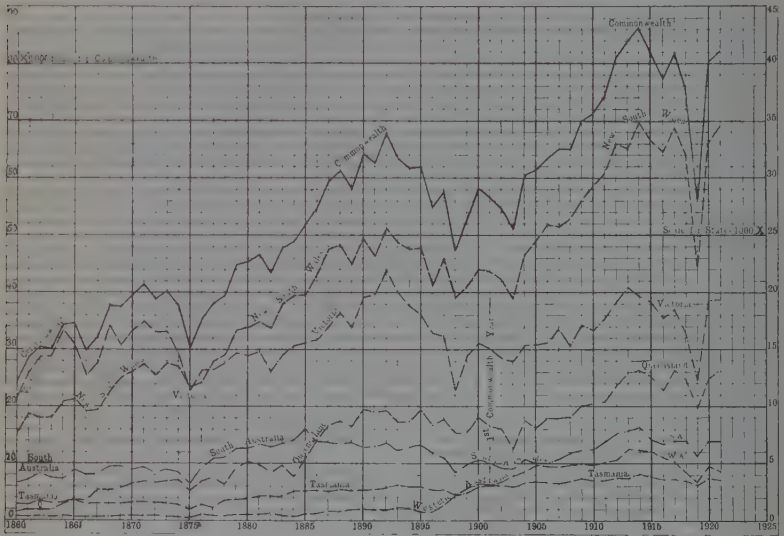
(See Table page 1062.)

EXPLANATION OF GRAPHS SHEWING TOTAL INCREASE.—The base of each small square represents an interval of a year for both States and Commonwealth; the vertical height represents 5,000 persons for the Commonwealth and the States. In the first graph (on page 1070) three zero lines are taken (i) for the Commonwealth, (ii) for New South Wales, and (iii) for Victoria. In the second graph four zero lines are taken (i) for Queensland, (ii) for South Australia, (iii) for Western Australia, and (iv) for Tasmania.

DECREASES in population are shown by carrying the graph in such cases below the zero line, the distance of the graph below the zero line indicating the extent of the decrease. The scales in these instances are on the right hand of the graph.

The names above the curves denote the States to which they belong.

GRAPHS OF NATURAL INCREASE OF THE POPULATION OF THE COMMONWEALTH
AND STATES OF AUSTRALIA, 1860 TO 1921.

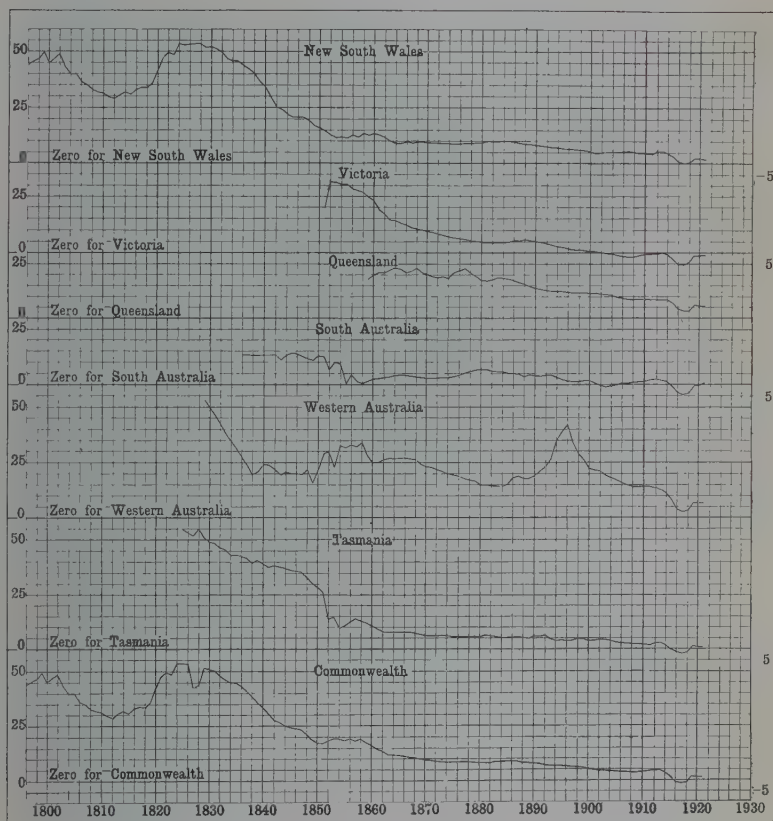


(See Table page 1059.)

EXPLANATION OF GRAPHS.—The base of each small square represents one year for both States and Commonwealth, and the vertical height 1,000 persons for the States and 2,000 persons for the Commonwealth.

The distances upward from the zero line, marked 0 for both Commonwealth and States, denote the excess of births over deaths. The scale on the left relates to the Commonwealth, and that on the right to the States. The names shew the States to which the curves refer, they are as follows:—Commonwealth —; New South Wales, — — —; Victoria, — · · · ·; Queensland, — — — —; South Australia, — · — · —; Western Australia, — — — —; Tasmania, — — — —.

GRAPHS SHEWING MASCULINITY OF THE POPULATION OF THE COMMONWEALTH:
AND STATES OF AUSTRALIA, 1796 TO 1921.



(See Table page 1051.)

EXPLANATION OF GRAPHS.—The base of each small square represents an interval of two years and the vertical height an excess of five males per 100 of population. The basic lines (shewn thickened) for Commonwealth and all the States are at zero, equivalent to a numerical equality of the sexes.

It will be noticed that in the case of New South Wales, and the Commonwealth in the years 1916, 1917, and 1918, Victoria in the years 1903 to 1912 and 1914 to 1919, South Australia in the years 1902 to 1904 and 1914 to 1919, and Tasmania for the years 1916 and 1917, the curves are below the zero line, thus shewing an excess of females over males.

DISTRIBUTION OF POPULATION THROUGHOUT THE COMMONWEALTH OF
AUSTRALIA, ACCORDING TO CENSUS OF 1911.



The above map furnishes a graphic representation of the distribution of the population of the Commonwealth at the date of the census of 1911. For this purpose the density of the population has been computed for the counties of each State, and the areas representing these counties have been shaded in accordance with the following scale of density:—

A—	Less than 1 inhabitant in 16 sq. miles	
B	From 1 inhabitant in 16 sq. miles to less than 1 in 4 sq. miles	
C—	1 " " 4 " " 1 in 1 sq. mile	
D—	2 " " 1 " " 4 in 1 " "	
E—	4 " " 1 " " 8 in 1 " "	
F—	8 " " 1 " " 16 in 1 " "	
G—	16 " " 1 " " 16 in 1 " "	
H—	16 inhabitants and upwards in 1 sq. mile	

The cross within the concentric circles, the centre of which is practically on the longitude of Melbourne and the latitude of Sydney, represents the "centre of gravity" of the population of the Commonwealth, and the cross within the single circle in each State represents the "centre of gravity" of the population of such State.

2. **Net Immigration.**—For the Commonwealth as a whole, for the decennium 1912-21 arrivals exceeded departures in each quarter except the fourth. New South Wales experienced excesses of arrivals in each quarter, Victoria and Queensland in three of the four quarters, South Australia and Western Australia in two, and Tasmania in one only. Particulars concerning the average net immigration of the several States and Territories are as follows:—

AVERAGE QUARTERLY NET IMMIGRATION, STATES, TERRITORIES AND COMMONWEALTH, 1912 TO 1921.

State or Territory.	Quarter ended on last day of—										Average Net Immigration per annum, 19.2-21.
	March.		June.		September.		December.				
	Persons.	%	Persons.	%	Persons.	%	Persons.	%	Persons.	%	
N.S.W.	4,698	2.47	1,506	0.79	4,125	2.15	246	0.13	10,575	5.57	
Victoria	792	0.55	-1,232	-0.86	1,350	0.94	1,976	1.37	2,886	2.02	
Q'land	1,753	2.56	5,770	8.36	1,299	1.86	-6,391	-9.08	2,431	3.55	
S.Aust.	-678	-1.50	-604	-1.34	835	1.84	1,686	3.70	1,239	2.75	
W. Aust.	-257	-0.82	614	1.95	639	2.02	-1,984	-6.22	-988	-3.15	
Tas. ..	-1,827	-9.11	-2,251	-11.28	-541	-2.73	3,497	17.61	-1,122	-5.60	
N.T. ..	41	9.92	91	21.83	24	5.63	-96	-22.40	60	14.52	
F.C.T.	-442	220.01	-2	0.80	-1	0.40	-454	-182.18	-15	-7.47	
C'wealth	4,964	1.00	3,892	0.78	7,720	1.54	-1,520	-0.30	15,066	3.02	

NOTE.—The minus sign (—) denotes that the departures were in excess of arrivals, and % denotes "per thousand" of population.

§ 6. Urban Population.

1. **The Metropolitan Towns.**—A feature of the distribution of population in Australia is the tendency to accumulate in the capital cities. To such an extent is this metropolitan aggregation carried, that in every State the population of the capital far outnumbers that of any other town therein, and ranges between 24 and 52 per cent. of the entire population of the State. The populations of the several capitals at the end of 1921, and the percentages of such populations on the totals for the respective States, are shewn in the table hereunder. As might be expected, the proportion of males resident within the metropolitan areas of the Commonwealth is less than that of females. Of the total male population of the Commonwealth 41.04 per cent. live in the capital cities, while the corresponding figure for females is 46.12 per cent. That this metropolitan concentration is phenomenal may be readily seen by comparing the percentage on the total population with the similar figures for the principal countries of Europe, also given in the table hereunder:—

METROPOLITAN POPULATION.

(VARIOUS COUNTRIES.)

State or Country.	Metropolis.	Year.	Population.	Percentage on total of State or Country.
New South Wales	Sydney	31st Dec., 1921.	926,400	43.55
Victoria	Melbourne		795,100	51.27
Queensland	Brisbane		217,714	28.27
South Australia	Adelaide		260,542	51.84
Western Australia	Perth		155,592	46.42
Tasmania	Hobart		53,803	24.63
Commonwealth	(6 Cities)	1921	2,409,151	43.77
New Zealand	Wellington		107,488	8.82
Denmark	Copenhagen	1921	666,159	20.25
England	London (a)	1921	4,483,249	11.83
Saxony	Dresden	1919	587,758	12.58
Norway	Christiania	1920	258,341	9.76

(a) Population of Greater London in 1921 was 7,476,168.

METROPOLITAN POPULATION—*continued.*(VARIOUS COUNTRIES)—*continued.*

State or Country.	Metropolis.	Year.	Population.	Percentage on total of State or Country.
				%
Netherlands ..	Amsterdam ..	1918	644,070	9.50
Ireland ..	Dublin ..	1911	403,030	9.18
Belgium ..	Brussels ..	1920	684,870	8.91
Bavaria ..	Munich ..	1919	630,711	8.83
Portugal ..	Lisbon ..	1921	435,359	7.31
France ..	Paris ..	1921	2,906,472	7.41
Sweden ..	Stockholm ..	1920	419,429	7.10
Austria ..	Vienna ..	1920	1,841,326	30.03
Scotland ..	Edinburgh ..	1921	420,281	8.61
Greece ..	Athens ..	1920	300,701	5.51
Prussia ..	Berlin ..	1919	1,970,000	5.31
Hungary ..	Budapest ..	1920	1,184,616	15.10
Spain ..	Madrid ..	1918	608,793	2.93
Switzerland ..	Berne ..	1920	104,626	2.70
Russia (European) ..	Petrograd ..	1915	2,318,645	1.76
Italy ..	Rome ..	1915	590,960	1.64

2. **Urban Population Generally.**—In connexion with the particulars showing the tendency in Australia to concentration of population in the metropolis, it should be borne in mind that in most of the European States the capital is but one of many populous cities, and in some instances is by no means the most populous. In Australia, on the other hand, the metropolis is in every instance the most populous city, and, in some of the States, is also the only town of considerable magnitude.

In the following table will be found particulars of the principal Urban Incorporated Areas in the Commonwealth returned at the date of the Census, on 4th April, 1921, as having a population of over 3,000. From this it will be seen that there were, in all, 50 localities in the Commonwealth returned as having a population upwards of 20,000. Of these 19 were in New South Wales, 18 in Victoria, 7 in Queensland, 3 in South Australia, 1 in Western Australia, and 2 in Tasmania.

By the term "Urban Incorporated Areas" is meant those urban districts which have been incorporated for municipal purposes. The populations shewn in each case are those recorded within the municipal boundaries. As the question of average annual rainfall is often associated with population and progress, the particulars of such rainfall are shewn against each area where a record of rainfall is kept.

POPULATION AND ANNUAL AVERAGE RAINFALL OF THE PRINCIPAL URBAN INCORPORATED AREAS IN THE COMMONWEALTH, 4th APRIL, 1921.

Town.	State in which Situated.	Approx. Population.	Average Annual Rainfall.	Town.	State in which Situated.	Approx. Population.	Average Annual Rainfall.
100,000 and over—			Inches.	20,000 and under			Inches.
Sydney ..	N.S.W.	104,182	48.04	50,000— <i>cont.</i>			
Melbourne ..	Vic.	103,269	25.66	Balmain ..	N.S.W.	32,124	(a)
50,000 and under				Bendigo ..	Vic.	25,693	21.17
100,000—				Brighton ..	"	21,243	24.93
Perth ..	W.A.	64,174	23.91	Brisbane ..	Qld.	42,636	45.65
Prahran ..	Vic.	50,266	25.38	Brisbane South ..	"	37,172	(a)
Randwick ..	N.S.W.	50,831	45.07	Broken Hill ..	N.S.W.	26,337	10.08
20,000 and under				Brunswick ..	Vic.	44,476	(a)
50,000—				Camberwell ..	"	23,844	27.63
Adelaide ..	S.A.	39,562	21.05	Canterbury ..	N.S.W.	37,621	39.89
Ashfield ..	N.S.W.	33,657	40.71	Caulfield ..	Vic.	40,692	27.58
Ballarat ..	Vic.	21,216	26.96	Collingwood ..	"	34,243	(a)
				Essendon ..	"	35,260	24.24
				Fitzroy ..	"	34,938	(a)

(a) No record.

POPULATION AND AVERAGE ANNUAL RAINFALL OF THE PRINCIPAL URBAN INCORPORATED AREAS IN THE COMMONWEALTH, 4TH APRIL, 1921—

continued.

Town.	State in which Situated.	Approx. Population.	Average Annual Rainfall.	Town.	State in which Situated.	Approx. Population.	Average Annual Rainfall.
20,000 and under			Inches.	5,000 and under			Inches.
50,000— <i>cont.</i>				10,000—			
Footscray ..	Vic.	33,772	(a)	Albury ..	N.S.W.	7,746	27.95
Glebe ..	N.S.W.	22,757	46.00	Alexandria ..	"	9,794	(a)
Hawthorn ..	Vic.	29,175	27.87	Armistead ..	"	5,309	31.77
Hobart ..	Tas.	43,615	23.59	Bathurst ..	"	9,442	23.93
Ipswich ..	Qld.	20,526	34.52	Botany ..	"	6,210	45.73
Ithaca ..	"	20,919	(a)	Boulder ..	W.A.	8,213	9.84
Launceston ..	Tas.	24,318	28.16	Bundaberg ..	Qld.	9,276	43.87
Leichhardt ..	N.S.W.	29,358	(a)	Cairns ..	"	7,455	90.48
Malvern ..	Vic.	32,308	31.14	Carrum ..	Vic.	5,216	(a)
Marrickville ..	N.S.W.	42,264	39.09	Castlemaine ..	"	5,330	22.21
Melbourne South ..	Vic.	46,879	(a)	Charters Towers ..	Qld.	9,499	25.63
Mosman ..	N.S.W.	20,051	45.19	Claremont ..	W.A.	5,508	31.24
Newtown ..	"	28,179	(a)	Cottesloe ..	"	5,431	(a)
Northcote ..	Vic.	30,513	(a)	Dubbo ..	N.S.W.	5,031	22.13
Paddington ..	N.S.W.	26,359	(a)	Enfield ..	"	8,527	(a)
Petersham ..	"	26,234	(a)	Erskineville ..	"	7,552	38.05
Port Adelaide ..	S.A.	30,116	(a)	Geelong West ..	Vic.	9,638	(a)
Redfern ..	N.S.W.	23,945	(a)	Glenelg ..	S.A.	7,998	18.37
Richmond ..	Vic.	43,174	25.65	Glenorchy ..	Tas.	6,348	25.86
Rockdale ..	N.S.W.	25,178	(a)	Grafton and Grafton South ..	N.S.W.	6,075	33.86
Rockhampton ..	Qld.	24,182	40.17	Gympie ..	Qld.	6,519	46.25
St. Kilda ..	Vic.	38,593	(a)	Hamilton ..	"	8,874	(a)
Sydney North ..	N.S.W.	48,444	(a)	Hamilton ..	Vic.	5,098	26.94
Toowoomba ..	Qld.	20,702	36.66	Hunter's Hill ..	N.S.W.	7,300	41.33
Townsville ..	"	21,348	48.39	Kalgoorlie ..	W.A.	7,898	9.84
Unley ..	S.A.	34,111	24.98	Katoomba ..	N.S.W.	9,052	55.75
Waverley ..	N.S.W.	36,788	(a)	Lane Cove ..	"	7,599	(a)
Willoughby ..	"	28,087	49.75	Lismore ..	"	8,679	51.05
Woollahra ..	"	25,409	(a)	Liverpool ..	"	6,295	(a)
10,000 and under				Mackay ..	Qld.	6,320	69.15
20,000—				Maitland West ..	N.S.W.	8,459	34.01
Annandale ..	N.S.W.	12,657	(a)	Mentone and Mordialloc ..	Vic.	5,670	26.05
Auburn ..	"	13,565	(a)	Merewether ..	N.S.W.	5,906	(a)
Ballaarat East ..	Vic.	13,456	(a)	Mildura ..	Vic.	5,100	11.15
Bankstown ..	N.S.W.	10,662	34.32	Mount Morgan ..	Qld.	7,214	31.43
Bexley ..	"	14,738	(a)	Newtown and Chiswick ..	Vic.	7,233	(a)
Burwood ..	"	15,733	40.24	Oakleigh ..	"	6,076	29.78
Coburg ..	Vic.	18,112	(a)	Orange ..	N.S.W.	7,399	25.26
Concord ..	N.S.W.	11,002	(a)	Port Pirie ..	S.A.	9,808	13.55
Drummoyne ..	"	18,762	(a)	Prospect and Sherwood ..	N.S.W.	8,732	33.70
Fremantle ..	W.A.	17,555	29.83	Sandgate ..	Qld.	6,277	46.89
Geelong ..	Vic.	14,818	21.35	Smithfield and Fairfield ..	N.S.W.	5,301	(a)
Goulburn ..	N.S.W.	12,667	24.84	Strathfield ..	"	7,594	(a)
Granville ..	"	13,320	(a)	Tamworth ..	"	7,265	27.39
Hamilton ..	"	14,196	(a)	Wagga Wagga ..	"	7,676	21.40
Hindmarsh ..	S.A.	12,461	(a)	Wallsend ..	Vic.	6,444	(a)
Hurstville ..	N.S.W.	13,398	(a)	Warrnambool ..	Qld.	7,739	27.84
Illawarra, Central and North ..	"	11,551	(a)	Warwick ..	Vic.	6,095	28.12
Kew ..	"	17,382	27.93	Wollongong ..	N.S.W.	6,707	44.52
Kogarah ..	N.S.W.	18,214	(a)	Wonthaggi ..	Vic.	5,176	34.83
Lidcombe ..	"	13,517	34.40	Wynnum ..	Qld.	8,357	38.17
Lithgow ..	"	13,276	33.44				
Manly ..	"	18,515	46.83				
Maryborough ..	Qld.	10,635	45.51				
Mascot ..	N.S.W.	10,930	(a)				
Newcastle ..	"	14,555	46.41				
Norwood and Kensington ..	S.A.	15,010	24.63	3,000 and under			
Parramatta ..	N.S.W.	14,602	36.03	5,000—			
Port Melbourne ..	Vic.	13,100	(a)	Adamstown ..	N.S.W.	3,958	(a)
Ryde ..	N.S.W.	14,865	35.22	Albany ..	W.A.	3,980	36.68
Sandringham ..	Vic.	11,306	(a)	Ararat ..	Vic.	4,657	23.60
St. Peters ..	N.S.W.	12,708	(a)	Bunbury ..	W.A.	4,478	36.47
St. Peters ..	S.A.	11,104	22.29	Canley Vale ..	N.S.W.	3,108	35.10
Subiaco ..	W.A.	13,650	33.35	Carrington ..	"	3,118	(a)
Thebarton ..	S.A.	14,087	(a)	Casino ..	"	3,453	43.52
Toowoong ..	Qld.	10,008	36.59	Collie ..	W.A.	3,314	38.28
Waratah ..	N.S.W.	12,191	(a)	Cootamundra ..	N.S.W.	3,528	23.20
Waterloo ..	"	11,199	(a)	Cows ..	"	3,717	23.62
Wickham ..	"	12,149	(a)	Darlington ..	"	3,648	(a)
Windsor ..	Qld.	18,262	35.24	Daylesford ..	Vic.	3,330	33.96
Williamstown ..	Vic.	19,445	(a)	Dundas ..	N.S.W.	3,520	(a)
				Eaglehawk ..	Vic.	4,719	(a)
				Echuca ..	"	3,745	16.91

(a) No record.

POPULATION AND AVERAGE ANNUAL RAINFALL OF THE PRINCIPAL URBAN
INCORPORATED AREAS IN THE COMMONWEALTH, 4TH APRIL, 1921—
continued.

Town.	State in which Situated.	Approx. Population.	Average Annual Rainfall.	Town.	State in which Situated.	Approx. Population.	Average Annual Rainfall.
3,000 and under			Inches.	3,000 and under			Inches.
5,000— <i>cont.</i>				5,000— <i>cont.</i>			
Forbes ..	N.S.W.	4,379	19.84	Mudgee ..	N.S.W.	3,168	25.75
Fremantle East ..	W.A.	4,424	33.64	Northam ..	W.A.	3,583	16.86
" North ..	"	3,547	32.65	Parkes ..	N.S.W.	3,947	20.92
Geraldton ..	"	4,176	18.92	Perith ..	"	3,595	29.87
Glen Innes ..	N.S.W.	4,976	31.83	Roma ..	Qld.	3,247	24.03
Henley and Grange ..	S.A.	3,980	17.72	Sale ..	Vic.	3,768	23.82
Horsham ..	Vic.	3,788	17.71	Singleton ..	N.S.W.	3,269	28.67
Inverell ..	N.S.W.	4,366	30.46	Southport ..	Qld.	3,543	54.76
June ..	"	3,563	20.44	Stawell ..	Vic.	4,411	21.31
Kempsey ..	"	3,609	44.42	Stockton ..	N.S.W.	4,600	(a)
Lambton ..	"	3,694	40.67	Temora ..	"	3,048	20.34
Lambton, New ..	"	3,549	(a)	Vaucluse ..	"	3,717	47.60
Maitland East ..	"	3,545	32.86	Walleroo ..	S.A.	3,308	14.18
Maryborough ..	Vic.	4,747	20.77	Wangaratta ..	Vic.	3,692	24.67
Midland Junction ..	W.A.	4,935	37.14	Wellington ..	N.S.W.	3,929	23.01
Moree ..	N.S.W.	3,020	23.63	Windsor ..	"	3,827	30.42
Mount Gambier ..	S.A.	3,968	31.34	Young ..	"	3,278	25.16

(a) No record.

For the purpose of providing a comparison of the populations of the several States and Territories, the following table has been compiled from the 1921 Census data, shewing the population of each State and Territory divided into four distinct sections, viz.:—Urban Metropolitan, Urban Provincial, Rural, and Migratory, and the percentage of each section on the total population for the State or Territory:—

URBAN AND RURAL POPULATION OF AUSTRALIA, 4th APRIL, 1921.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

(Subject to revision.)

Particulars.	States.						Territories.		Total Common- wealth
	New South Wales.	Victoria.	Queens- land.	South Aus- tralia.	Western Aus- tralia.	Tas- mania.	Northern Terri- tory.	Federal Capital Terri- tory.	
NUMBER.									
Urban—									
Metropolitan ..	899,099	766,506	210,032	255,481	154,866	52,391	..	..	2,338,376
Provincial ..	524,698	187,524	183,816	42,801	42,562	49,142	1,398	..	1,031,941
Rural ..	664,453	571,747	360,500	193,963	129,764	111,692	2,407	2,563	2,037,089
Migratory ..	11,513	5,752	3,286	3,091	5,021	652	65	9	29,389
Total ..	2,099,763	1,531,529	757,634	495,336	332,213	213,877	3,870	2,572	5,436,794
PERCENTAGE ON TOTAL.									
Urban —									
Metropolitan ..	42.82	50.05	27.72	51.58	46.62	24.50	..	..	43.01
Provincial ..	24.99	12.24	24.26	8.64	12.81	22.98	36.12	..	18.98
Rural.. ..	31.64	37.33	47.58	39.16	39.06	52.22	62.20	99.65	37.47
Migratory ..	0.55	0.38	0.44	0.62	1.51	0.30	1.68	0.35	0.54
Total ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

For the Commonwealth as a whole 61.99 per cent. of the population is urban, this percentage being exceeded by New South Wales, 67.81 per cent., and Victoria 62.29 per cent. Tasmania, with 47.48 per cent., has the smallest percentage of urban population in all the States.

§ 7. Dwellings in the Commonwealth.

The preliminary enquiry relating to the dwellings in each State and Territory in the Commonwealth shews that the total number of dwellings in the Commonwealth as at the 4th April, 1921, was 1,211,924, of which 1,154,423 were occupied, 51,163 unoccupied, and 6,338 were being built at the time of the Census. This represents an average for the whole of the Commonwealth of 4.68 inmates per occupied dwelling as compared with 4.78 occupants at the time of the 1911 Census. The term "unoccupied" does not necessarily imply that such dwellings were "to let," but that there were no inmates at the date of the Census. Of the States, New South Wales, with 4.82 inmates per occupied dwelling, has the highest average, and Western Australia, with 4.45 inmates, the lowest average. Particulars relating to each State and Territory in the Commonwealth are shewn in the following table, viz. :—

DWELLINGS IN EACH STATE AND TERRITORY IN THE COMMONWEALTH OF AUSTRALIA, 4th APRIL, 1921.

(Subject to revision.)

Particulars of Dwellings.	States.						Territories.		Total Commonwealth.
	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	North-ern.	Federal Capital.	
Occupied ..	433,429	331,056	160,956	108,000	73,491	45,816	1,148	527	1,154,423
Unoccupied ..	13,619	14,994	6,747	4,431	3,274	2,934	135	29	51,163
Being Built ..	2,724	2,009	347	674	289	295	..	..	6,338
Total ..	454,772	348,059	168,050	113,105	77,054	49,045	1,283	556	1,211,924
Inmates per Occupied Dwelling..	4.82	4.61	4.60	4.56	4.45	4.65	3.31	4.86	4.68

An examination of the particulars furnished regarding the average number of inmates per occupied dwelling in the Urban Metropolitan, Urban Provincial, and Rural sections of the Commonwealth, as shewn in the following table, reveals the interesting fact that whilst the number of occupied dwellings in each section was respectively 490,714, 216,307, and 447,405, the average number of inmates in each of the urban sections was 4.77, and that for the rural section the lower average of 4.55 inmates per occupied dwelling was recorded. The details are as follows :—

DWELLINGS IN URBAN AND RURAL PARTS OF THE COMMONWEALTH OF AUSTRALIA, 4th APRIL, 1921.

(Subject to revision.)

Particulars.	Dwellings.				Inmates per Occupied Dwelling.
	Occupied.	Unoccupied.	Being Built.	Total.	
Urban—					
Metropolitan ..	490,711	14,109	4,162	508,982	4.77
Provincial ..	216,307	10,186	931	227,424	4.77
Rural ..	447,405	26,868	1,245	475,518	4.55
Total ..	1,154,423	51,163	6,338	1,211,924	4.68

§ 8. Population of Territories of the Commonwealth.

At the Census of the 4th April, 1921, special arrangements were made to obtain complete and uniform information concerning each of the five Territories of the Commonwealth, viz. :—

- (1) Northern Territory.
- (2) Federal Capital Territory.
- (3) Norfolk Island.
- (4) Papua.
- (5) Territory of New Guinea.

The work of Census enumeration in each Territory was carried out under the direction of the Commonwealth Supervisor of Census, the local organization in each Territory being under the control of a Deputy Supervisor of Census stationed in each Territory. On the conclusion of the collection the whole of the material was forwarded to the Census Office, Melbourne, for tabulation in conjunction with the data for the Commonwealth. A summary of the population and number of dwellings in each collector's district of each Territory is shewn in the following tables :—

(1) NORTHERN TERRITORY.

POPULATION AND DWELLINGS IN POLICE DISTRICTS, 4th APRIL, 1921.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

Police District.	Population.			Dwellings.				Campers Out.
	Males.	Females.	Total.	Occupied.	Unoccupied.	Being Built.	Total.	
Alice Springs ..	119	112	231	30	..	..	30	4
Alice Well ..	63	30	93	16	..	..	16	..
Anthony's Lagoon ..	54	12	66	17	..	..	17	11
Arlunga ..	56	29	85	20	..	..	20	1
Boorooloolo ..	63	17	80	25	5	..	30	11
Brook's Creek ..	158	31	189	109	50	..	159	7
Daly River ..	35	6	41	18	..	..	18	12
Darwin ..	a 919	480	1,399	420	45	..	465	1
	b 204	113	317	126	38	..	164	2
Frew River ..	34	10	44	12	..	..	12	..
Katherine ..	84	22	106	18	..	..	18	40
Lake Nash ..	90	22	112	11	..	1	12	16
Marranboy ..	47	11	58	32	..	..	32	2
Newcastle Waters ..	71	19	90	6	..	..	6	35
Pine Creek ..	305	49	354	156	..	..	156	10
Rankine River ..	215	29	244	25	..	..	25	11
Roper River ..	54	30	84	10	..	..	10	45
Timber Creek ..	149	20	169	19	..	..	19	27
Wave Hill ..	37	3	40	5	..	..	5	16
Shipping ..	64	1	65	..	..	..	..	..
Total ..	2,821	1,046	3,867	1,075	138	1	1,214	251

(a) Municipality of Darwin.

(b) Comprises portion of Police District of Darwin south of municipality, also Melville, Bathurst, and Goulburn Islands.

(2) FEDERAL CAPITAL TERRITORY.

POPULATION AND DWELLINGS IN THE SEVERAL COLLECTORS' DISTRICTS,
4th APRIL, 1921.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

Collector's District.	Population.			Dwellings.			
	Males.	Females.	Total.	Occu- pied.	Unoccu- pied.	Being Built.	Total.
Central ..	231	150	381	93	..	..	93
Duntroon ..	325	193	518	105	3	..	108
Eastern ..	120	100	220	42	7	..	49
Jervis Bay ..	356	159	515	84	..	..	84
Northern ..	176	134	310	65	5	..	70
Southern ..	66	44	110	24	3	..	27
Stromlo ..	69	52	121	29	..	..	29
Tidbinbilla ..	77	70	147	31	10	..	41
Tuggeranong ..	94	66	160	36	..	..	36
Woden ..	44	37	81	18	..	..	18
Shipping ..	9	..	9	..	..	..	..
Total ..	1,567	1,005	2,572	527	28	..	555

(3) NORFOLK ISLAND.

POPULATION AND DWELLINGS, 4th APRIL, 1921.

Collector's District.	Population.			Dwellings.			
	Males.	Females.	Total.	Occu- pied.	Unoccu- pied.	Being Built.	Total.
Norfolk Island ..	339	378	717	168	22	3	193

(4) PAPUA.

NON-INDIGENOUS POPULATION IN THE SEVERAL COLLECTORS' DISTRICTS
AND THEIR DWELLINGS, 4th APRIL, 1921.

Collector's District.	Population.			Dwellings.			
	Males.	Females.	Total.	Occu- pied.	Unoccu- pied.	Being Built.	Total.
Abau ..	22	6	28	19	3	..	22
Baniara ..	19	12	31	11	..	..	11
Buna ..	16	3	19	12	..	..	12
Bwagaia ..	123	50	173	82	1	..	83
Cape Nelson ..	11	6	17	9	2	..	11
Daru ..	34	25	59	13	2	..	15
Ioma ..	6	..	6	2	..	..	2
Kairuka ..	190	128	318	87	..	..	87
Kerema ..	48	25	73	36	..	..	36
Kikori ..	10	4	14	7	2	..	9
Kokada ..	5	..	5	5	..	..	5
Losuia ..	24	16	40	20	..	..	20
Nepa(a) ..	..	..	..	..	..	..	..
Port Moresby ..	387	190	577	199	19	4	222
Rigo ..	39	14	53	25	4	..	29
Samarai ..	288	167	455	145	10	..	155
Shipping ..	186	24	210	..	..	..	..
Total ..	1,408	670	2,078	(b) 672	43	4	719

(a) No non-indigenous population at date of Census.

(b) In addition, there were 15 cases in which Census night was passed in camps without ordinary dwellings.

(5) TERRITORY OF NEW GUINEA.

NON-INDIGENOUS POPULATION IN THE SEVERAL COLLECTORS' DISTRICTS
AND THEIR DWELLINGS, 4th APRIL, 1921.

Collector's District.	Population.			Dwellings.			
	Males.	Females.	Total.	Occu- pied.	Unoccu- pied.	Being Built.	Total.
Eitape ..	76	27	103	57	..	..	57
Elasmatta ..	16	..	16	11	..	..	11
Kaewieng ..	288	68	356	174	..	..	174
Kieta ..	119	29	148	71	..	..	71
Kokopo ..	276	93	369	86	..	..	86
Madang ..	195	77	272	97	5	..	102
Manus ..	117	15	132	58	..	..	58
Morobe ..	79	60	139	26	..	..	26
Namatanai ..	120	28	148	49	13	..	62
Rabaul ..	1,078	272	1,350	401	..	..	401
Talasea ..	33	1	34	26	..	..	26
Shipping ..	105	1	106	..	..	..	..
Total ..	2,502	671	3,173	1,056	18	..	1,074

NOTE.— All of the above tables are subject to revision.

§ 9. Assisted Immigration.

In the earlier days of settlement in Australia, State-assisted immigration played an important part. Such assistance ceased for the time being in Victoria in 1873, in South Australia in 1886, and in Tasmania in 1891. In New South Wales, general State-aided immigration was discontinued in the year 1887, but those who arrived under that system and were still residing in New South Wales might, under special regulations, send for their wives and families. A certain amount of passage money, graduated according to the age of the immigrant, was required to be paid in each case. Under the provisions of these regulations, immigrants to the number of 1,994 received State assistance during the years 1888 to 1899 inclusive. From 1900 to 1905 no assistance of any kind was given, but from 1906 onwards assistance has again been afforded. In Queensland and Western Australia, such assistance, although varying considerably in volume from year to year, has been accorded for many years past. Assistance to immigrants, which in the case of Victoria had practically ceased in 1873, has recently been again afforded. In South Australia the principle of State assistance was again introduced in 1911, and in Tasmania in 1912.

The number of assisted immigrants for the years 1914 to 1921, and the total from the earliest times up to the end of 1921, are given in the following table :—

ASSISTED IMMIGRANTS DURING THE YEARS 1914 TO 1921, AND UP TO THE
END OF 1921.

STATES AND COMMONWEALTH.

State	N.S.W.	Victoria.	Qld.	S. Aust.	W.A.	Tas.	C'wlth.
No. Assisted during 1914	6,655	7,496	4,096	644	1,729	185	20,805
" " " 1915	1,695	1,724	1,599	79	635	64	5,796
" " " 1916	649	327	300	..	103	18	1,397
" " " 1917	239	146	91	..	26	2	504
" " " 1918	199	101	100	..	26	..	426
" " " 1919	67	139	39	..	..	..	245
" " " 1920	3,211	2,763	1,272	..	1,499	314	9,059
" " " 1921	4,980	3,987	1,147	572	3,381	615	14,682
Total to end of 1921 ..	280,192	193,644	216,605	103,279	46,701	23,112	863,533

§ 10. Enumerations and Estimates.

1. **Musters.**—Actual enumerations of Australia's population, of varying accuracy, have been made from the earliest times onward. These were originally known as "Musters," and were first undertaken with a view to estimating the food and other requirements of the settlements. They appear to have been very unreliable, and to have been carried out at least annually from 1788 to 1825, when they were discontinued.

2. **Census-taking.**—The first regular Census in Australia was that of New South Wales, in November, 1828. The dates on which the Censuses have been taken in the several States, and the populations enumerated thereat, are shewn in the table on page 1085.

3. **The Census of 1901.**—A conference of the Government Statisticians of Australia and New Zealand was held in Sydney in February and March, 1900, with the object of securing uniformity in the collection and compilation of the Census of 1901. The householder's schedule which it drafted made provision for the collection of information in all the States under the following heads, viz. :—Name, Sex, Age, Conjugal Condition, Relation to Head of Household, Occupation, Sickness and Infirmary, Birthplace, Length of Residence in Colony, Religion, Education, Materials of Houses and Number of Rooms. In addition to these, it was agreed that States so desiring might include further inquiries relating to Land, Live Stock, Crops, and certain other matters.

Provision was made for uniformity in the classification and compilation of the data by formulating rules for dealing with cases in which differences of opinion as to methods of treatment might exist. Thus, although conducted by six different States, the Census of the Commonwealth, as taken in 1901, was carried out on a fairly uniform plan, and consequently furnished data in many ways suitable for purposes of aggregation or comparison. A detailed examination of the results, however, gives many indications of departure from a common line of action, which, in the absence of a central authority, can hardly be avoided in an undertaking of this nature.

4. **The Census of 1911.**—Under Section 51, sub-section (xi.) of the Constitution Act, power is given to the Parliament of the Commonwealth to make laws with respect to "Census and Statistics." This power was brought into requisition in 1905, when the Census and Statistics Act of 1905 became law, being assented to on 8th December, 1905. Under this Act provision is made for the appointment of a Commonwealth Statistician, and amongst other duties that officer is charged with the taking of a Census in the year 1911 and in every tenth year thereafter.

The particulars which the Act requires to be included in the Census schedule are almost identical with those which were contained in the 1901 schedule, the principal alterations being that "Length of Residence in Australia" is specified instead of "Length of Residence in the Colony of Enumeration," that "Duration of Marriage" has to be asked in all cases, and that nationality has to be ascertained in addition to birthplace. The Census was taken as at 3rd April, 1911.

In each State a Census supervisor was appointed to control the collection within that State under the direction of the Commonwealth Statistician. Each State was then divided into Census districts, each of which was placed in the charge of an enumerator, and each Census district was further subdivided into collectors' districts, one collector for each district.

It should be noted, in connexion with the Census of 1911, that a slight change in defining the date of reference has been made in order to accord with the English practice. In previous Australian Censuses the date of the Census has been taken to be that of the day preceeding the midnight which is adopted as the determining point. Thus, at the Census of 1901, where the figures given relate approximately to midnight between the 31st March and the 1st April, the Australian Census was stated to be that of the 31st March, while in a precisely similar case in England it was stated to be that of 1st April. At the Census of 1911, taken as at midnight between the 2nd and 3rd April, the date of the Census has, in accordance with the English practice, been stated to be the 3rd April, and that day was gazetted as the day of the Census.

5. **The Census of 1921.**—The third Australian Census since the commencement of the century was taken under the Census and Statistics Act 1905–20, as at midnight between the 3rd and 4th April, 1921, the latter date being gazetted as Census Day. On this occasion the Federal Electoral organization was utilized for collecting purposes, the Commonwealth Chief Electoral Officer (Mr. Oldham) kindly consenting to allow his officers to undertake the local direction of the collecting staffs.

In each State the Commonwealth Electoral Officer was appointed Deputy Supervisor of Census for that State, and each Divisional Returning Officer was appointed Census Enumerator for the Division under his control. To assist the Enumerators in the selection and direction of the actual collectors, Sub-enumerators were appointed, the Census Subdivision being in most cases a Federal Electoral Subdivision or a group of two or more such electoral subdivisions.

In addition to the six States the five territories of the Commonwealth were also enumerated, viz., (i) Northern Territory, (ii) Federal Capital Territory, (iii) Norfolk Island, (iv) Papua, (v) Territory of New Guinea.

In each of these cases a Deputy Supervisor of Census was appointed who, however, dealt directly with his collectors without the intermediary of Enumerators and Sub-enumerators. For the whole of the Commonwealth and its dependencies the collecting organization comprised the following, viz.:—11 Deputy Supervisors, 75 Enumerators, 979 Sub-enumerators, 9,500 Collectors.

The compilation of the results is being carried out as far as possible by machinery, this being the first occasion on which the tabulation of an Australian Census has been so conducted. The system in use is that which is generally known as the "Hollerith," and the requisite machines and cards are supplied by the British Tabulating Machine Company, London.

The particulars at present available are the populations of the several States and Territories, and of the several Local Government Areas comprised therein, details of which have been included as far as practicable in the present Section. The population estimates for the intercensal period 1911-21 have also been adjusted on the basis of the results disclosed by the Census of 1921. Analyses of the Census data according to age, birthplace, religion, occupation, etc., will, however, not be available for some considerable time, and the figures relative thereto for the Census of 1911 have, therefore, for the present been retained.

6. Population at Censuses from 1828 to 1921.—The total populations enumerated at the several Australian Censuses are shewn in the following table:—

AUSTRALIAN CENSUSES, 1828 TO 1921.

Census Year.	Population Enumerated (exclusive of Aborigines).							
	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Nor. Terr.	Fed. Terr.
1828	(Nov.) 36,598	..	..	..	..	..	..	..
1833	(2nd Sep.) 60,794	..	..	..	..	..	..	..
1836	(2nd Sep.) 77,096	..	..	..	..	..	..	..
1841	(2nd Mar.) 130,856	..	..	..	..	(27th Sep.) 50,216	..	..
1844	..	..	..	(26th Feb.) 17,366	..	..	..	..
1846	(2nd Mar.) 189,609	..	..	(26th Feb.) 22,390	..	..	..	..
1847	..	..	..	..	..	(31st Dec.) 70,164	..	..
1848	..	..	..	..	(10th Oct.) 4,622	..	..	..
1851	(1st Mar.) 268,344	..	..	(1st Jan.) 63,700	..	(1st Mar.) 70,130	..	..
1854	(a)	(26th Apr.) 234,298	..	..	(30th Sep.) 11,743	..	..	..
1855	..	(b)	..	(31st Mar.) 85,821	..	..	..	..
1856	(1st Mar.) 269,722	..	..	..	..	..	..	..
1857	..	(29th Mar.) 408,998	..	..	..	(31st Mar.) 81,492	..	..
1859	..	..	..	..	(31st Dec.) 14,837	..	..	..
1861	(7th Apr.) 350,860	(7th Apr.) 538,628	(7th Apr.) (b) 30,059	(7th Apr.) 126,830	..	(7th Apr.) 89,977	..	..
1864	..	..	(1st Jan.) 61,467	..	..	..	..	..
1866	..	..	(26th Mar.) 163,452	..	..	..	..	..
1868	..	..	(2nd Mar.) 99,901	..	..	..	..	..
1870	..	..	..	..	(31st Mar.) 24,785	(7th Feb.) 99,328	..	..
1871	(2nd Apr.) 502,998	(2nd Apr.) 730,198	(1st Sep.) 120,104	(2nd Apr.) 185,626	..	..	..	..
1876	..	..	(1st May) 173,288	(26th Mar.) 213,271	..	..	..	..
1881	749,825	861,566	213,525	279,865	29,708	115,705	..	2,250,194
1886	..	..	(1st May) 322,853	..	..	..	..	..
1891	1,123,954	1,139,840	393,718	320,431	49,782	146,667	..	3,174,392
1901	1,354,846	1,201,070	498,129	363,157	184,124	172,475	..	3,773,801
1911	1,646,734	1,315,551	605,813	408,558	282,114	191,211	3,310	4,455,005
1921	2,099,763	1,531,529	757,634	495,336	332,213	213,877	3,870	5,436,794
	(i)						(g)	(h)

(a) Including Port Phillip District, which afterwards became the Colony of Victoria. (b) Previously included with New South Wales. (c) 3rd April. (d) 5th April. (e) 31st March. (f) 3rd April. (g) Previously included with South Australia. (h) Previously included with New South Wales. (i) 4th April (subject to revision).

7. *Estimates of Population.*—In the absence of an annual enumeration of the population, it becomes necessary to adopt some method of estimating it for intercensal periods, basing such estimates on the results of the most recent Censuses. The manner in which this is effected varies, however, in different parts of the world. In England, for example, the assumption usually made is that the rate of increase of the preceding intercensal period will continue unchanged during the current period. Again, in the United States, it has been assumed, in certain cases, that the numerical increase per annum ascertained for the preceding intercensal period will hold good for the current period. From the earliest times in Australia, "statistics of fluctuation" have been obtained from the records of births, deaths, arrivals and departures. With reasonable thoroughness in the collection of such statistics, the deduced estimates possess much greater weight than those based on the mere assumption of a continuation of the increase experienced in the preceding period. In most cases, however, estimates of population, based on statistics of fluctuation, are found to be in excess at the Census, thus furnishing evidence of a uniform tendency to over-estimation, and indicating the necessity for a correction. In the population figures given in the earlier portion of the present section, the estimates of the population of the several States have been carefully revised, the results of the various Censuses being taken in conjunction with the records of births, deaths, arrivals and departures. It is believed that by this means the population of the Commonwealth from the date of settlement onwards has been obtained with a high degree of accuracy, and that the figures supplied represent a reasonably close approximation to the actual numbers. A detailed account of the adjustment for the decennium 1901–10 will be found on pp. 112–118 of Year Book No. 6. Particulars for the several States and Territories from the date of settlement onwards are given in the following tables, and are shewn by graphs on pages 1067 to 1069:—

COMMONWEALTH POPULATION FROM EARLIEST DATE.

Estimated Population at end of Year.

Year.	States.						Territories.		Commonwealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern	Federal.	
MALES.									
(a) 1800	3,780	..	..	..	..	..	..	..	3,780
1805	5,395	..	..	..	..	..	..	..	5,395
1810	7,585	..	..	..	..	..	..	..	7,585
1815	9,848	..	..	..	..	..	..	..	9,848
1820	23,784	..	..	..	..	..	..	..	23,784
1825	29,309	..	..	..	..	(b) 10,979	..	..	40,288
1830	33,900	..	..	..	877	18,108	..	..	52,885
1835	31,949	..	..	..	1,231	28,749	..	..	81,929
1840	85,560	..	..	8,272	1,434	32,040	..	..	127,306
1845	113,739	..	..	12,810	2,699	43,921	..	..	173,159
1850	154,976	..	..	35,902	3,576	44,229	..	..	238,683
1855	147,822	(b) 226,462	..	48,843	8,311	38,680	..	..	470,118
1860	197,851	330,302	(b) 16,817	64,340	9,597	49,653	..	..	668,560
1865	222,890	348,717	53,292	84,255	13,575	50,549	..	..	773,278
1870	272,121	397,230	69,221	94,894	15,511	53,517	..	..	902,494
1875	322,534	424,289	102,161	108,706	16,141	54,678	..	..	1,028,489
1880	404,952	450,558	124,013	147,438	16,985	60,568	..	..	1,204,514
1885	518,806	504,097	186,866	162,425	20,688	67,712	..	..	1,460,394
1890	602,704	595,519	223,252	166,049	28,854	76,453	..	..	1,692,831
1895	668,209	607,933	248,865	180,314	69,733	80,485	..	..	1,855,539
1900	716,047	601,773	274,684	180,349	110,088	89,763	(c) 4,288	..	1,976,992
1905	782,897	598,134	291,807	181,467	146,498	95,947	3,368	..	2,100,118
1910	858,181	646,482	325,513	206,557	157,971	98,866	2,738	..	2,296,309
1915	972,550	694,180	366,353	220,981	170,764	98,665	3,586	(b) 957	2,528,016
1916	945,846	666,186	352,639	212,602	159,086	96,010	3,712	1,194	2,437,275
1917	960,103	671,008	354,929	213,691	157,355	96,945	3,748	1,080	2,468,859
1918	984,453	684,187	363,650	219,723	159,662	100,109	3,499	1,179	2,516,442
1919	1,041,993	739,872	390,682	240,226	174,750	106,374	3,376	1,008	2,698,281
1920	1,067,513	753,710	397,180	245,325	176,638	107,283	2,911	1,062	2,751,622
1921	1,083,926	764,810	405,593	252,170	178,222	110,050	2,718	1,128	2,798,617

(a) Details as to sex not available for earlier quinquennial dates.

(b) Previously included with

New South Wales.

(c) Previously included with South Australia.

COMMONWEALTH POPULATION FROM EARLIEST DATE—continued.

Estimated Population at end of Year.									
Year.	States.						Territories.		Commonwealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern	Federal.	
FEMALES.									
(a) 1800	1,437	..	..	..	..	..	..	..	1,437
1805	2,312	..	..	..	..	..	..	..	2,312
1810	3,981	..	..	..	..	..	..	..	3,981
1815	5,215	..	..	..	..	..	..	..	5,215
1820	9,759	..	..	..	..	..	..	..	9,759
1825	9,004	..	..	..	..	(b) 3,213	..	..	12,217
1830	10,688	..	..	..	295	6,171	..	..	17,154
1835	19,355	..	..	..	647	11,423	..	..	31,425
1840	41,908	..	..	6,358	877	13,959	..	..	63,102
1845	74,179	..	..	9,650	1,790	20,370	..	..	105,989
1850	111,924	..	..	27,798	2,310	24,641	..	..	166,673
1855	118,179	(b) 120,843	..	48,544	4,294	31,282	..	..	323,142
1860	150,695	207,932	(b) 11,239	61,242	5,749	40,168	..	..	477,025
1865	185,616	269,074	33,629	77,222	7,806	43,418	..	..	616,765
1870	225,871	326,695	46,051	89,652	9,624	47,369	..	..	745,262
1875	270,833	370,665	66,944	101,370	10,861	49,061	..	..	869,734
1880	336,190	408,047	87,027	128,955	12,576	54,222	..	..	1,027,017
1885	425,261	455,741	129,815	146,888	15,271	61,148	..	..	1,234,124
1890	510,571	538,209	168,864	152,898	19,648	68,334	..	..	1,458,524
1895	587,294	577,743	194,199	171,654	30,782	74,410	..	..	1,636,082
1900	644,258	594,440	219,163	176,901	69,879	83,137	(c) 569	..	1,788,347
1905	704,987	612,287	239,675	181,154	103,640	90,438	678	..	1,932,859
1910	785,674	654,926	273,503	200,311	118,861	94,937	563	..	2,128,775
1915	920,641	730,433	319,511	225,096	145,662	98,925	898	(b) 872	2,442,038
1916	938,876	738,645	325,347	229,345	147,505	99,656	954	1,029	2,481,357
1917	959,518	746,231	332,699	233,139	149,137	101,131	1,055	1,024	2,523,934
1918	976,990	753,266	341,887	237,965	150,120	102,815	1,141	1,053	2,565,237
1919	996,159	763,369	346,906	241,389	152,655	103,581	1,171	911	2,606,141
1920	1,023,602	774,441	355,065	245,852	154,181	105,564	1,081	910	2,660,696
1921	1,043,345	786,142	364,423	250,433	156,951	108,363	1,019	936	2,711,612

PERSONS.

1788	859	..	..	..	..	..	..	..	859
1790	2,056	..	..	..	..	..	..	..	2,056
1795	3,466	..	..	..	..	..	..	..	3,466
1800	5,217	..	..	..	..	..	..	..	5,217
1805	7,707	..	..	..	..	..	..	..	7,707
1810	11,566	..	..	..	..	..	..	..	11,566
1815	15,063	..	..	..	..	..	..	..	15,063
1820	33,543	..	..	..	..	..	..	..	33,543
1825	38,313	..	..	..	..	..	..	..	52,505
1830	44,588	..	..	..	..	(b) 14,192	..	..	70,030
1835	71,304	..	..	..	1,172	24,279	..	..	113,354
1840	127,468	..	..	14,630	2,311	45,999	..	..	190,408
1845	187,918	..	..	22,400	4,479	64,291	..	..	279,148
1850	266,900	..	..	63,700	5,886	68,870	..	..	405,356
1855	266,001	(b) 347,305	..	97,387	12,605	69,962	..	..	793,260
1860	348,546	538,234	(b) 28,056	125,582	15,346	89,821	..	..	1,145,585
1865	408,506	617,791	86,921	161,477	21,381	93,967	..	..	1,390,043
1870	497,992	723,925	115,272	184,546	25,135	100,886	..	..	1,647,756
1875	593,367	794,934	169,105	210,076	27,002	103,739	..	..	1,898,223
1880	741,142	858,605	211,040	276,393	29,561	114,790	..	..	2,231,531
1885	943,867	959,838	316,681	309,313	35,959	128,860	..	..	2,694,516
1890	1,113,275	1,133,728	392,116	318,947	48,502	144,787	..	..	3,151,355
1895	1,255,503	1,185,676	443,064	351,968	100,515	154,895	..	..	3,491,621
1900	1,360,305	1,196,213	493,847	357,250	179,967	172,900	(c) 1,857	..	3,765,339
1905	1,437,884	1,210,421	531,482	362,621	250,138	186,385	4,040	..	4,032,977
1910	1,643,855	1,301,408	599,016	406,868	276,832	193,803	3,301	..	4,425,083
1915	1,893,191	1,424,593	685,864	446,077	316,426	197,590	4,484	(b) 1,829	4,970,054
1916	1,884,722	1,404,831	677,986	441,947	306,591	195,666	4,666	2,223	4,918,632
1917	1,919,621	1,417,239	687,628	446,830	306,492	198,076	4,803	2,104	4,982,793
1918	1,961,443	1,437,433	705,537	457,688	309,782	202,024	4,640	2,232	5,081,679
1919	2,038,152	1,503,241	737,588	481,615	327,405	209,955	4,547	1,919	5,304,422
1920	2,091,115	1,528,151	752,245	491,177	330,819	212,847	3,992	1,972	5,412,318
1921	2,127,271	1,550,952	770,016	502,903	335,173	218,413	3,737	2,064	5,510,229

(a) Details as to sex not available for earlier quinquennial dates. (b) Previously included with New South Wales. (c) Previously included with South Australia.

The tables on this and the preceding page, shewing the quinquennial and other figures for the male, female, and total population of each State and the Commonwealth, give sufficient indication, for general purposes, of its progress. A reference to the diagrams

given hereinbefore (pp. 1067 to 1069), on which the graphs shew the particulars for each year, is also desirable. The characteristics of the fluctuations of each element, or of the totals, will be more readily perceived by reference to the graphs than they possibly can by reference to these numerical tables. The earliest date for which particulars as to sex were available is 1796. The figures from 1788 to 1825 inclusive, as already mentioned, are based upon the results of the musters taken in those years; those for subsequent years are founded upon estimates made on the basis of the Census results and the annual returns of births and deaths and immigration and emigration.

The following table furnishes particulars relative to the increase of population of the Commonwealth during each decade, and the percentage of such increase on the population at the commencement of the decade :—

INCREASE OF COMMONWEALTH POPULATION.

Decade ended 31st December.	Increase during Decade—					
	Numerical.			Percentage.		
	Males.	Females.	Persons.	Males.	Females.	Persons.
				%	%	%
1790	(a)	(a)	2,056	..	..	..
1800	(a)	(a)	3,161	(a)	(a)	153.75
1810	3,805	2,544	6,349	100.66	177.04	121.70
1820	16,199	5,778	21,977	213.57	145.14	190.01
1830	29,101	7,395	36,496	122.36	75.78	108.80
1840	74,421	45,948	120,369	140.72	267.86	171.86
1850	111,377	103,571	214,948	87.49	164.13	112.89
1860	429,877	310,352	740,229	180.10	186.20	182.61
1870	233,934	268,237	502,171	34.99	56.23	43.84
1880	302,020	281,755	583,775	33.47	37.81	35.43
1890	488,317	431,507	919,824	40.54	42.02	41.22
1900	284,161	329,823	613,984	16.79	22.61	19.48
1910	319,316	340,428	659,744	16.15	19.04	17.52
1920	455,314	531,921	987,235	19.83	24.99	22.31

(a) Not available.

§ 11. Census of 4th April, 1921.

1. Numbers Enumerated.—As already mentioned, the Census for the whole of the Australian Commonwealth was taken as for the night between the 3rd and the 4th of April, 1921, and was the second Census under the provisions of the Commonwealth Census and Statistics Act 1905-20, which provides for the enumeration of the whole of Australia being dealt with from one centre, instead of each State being responsible for its own count as on previous occasions. The numbers recorded in the several States and Territories of the Commonwealth were as follows :—

POPULATION OF THE COMMONWEALTH, 4th APRIL, 1921.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

States and Territories.	Males.	Females.	Persons.
States—			
New South Wales	1,071,058	1,028,705	2,099,763
Victoria	754,629	776,900	1,531,529
Queensland	399,610	358,024	757,634
South Australia	248,293	247,043	495,336
Western Australia	177,013	155,200	332,213
Tasmania	107,767	106,110	213,877
Territories—			
Northern	2,821	1,049	3,870
Federal	1,567	1,005	2,572
Total Commonwealth ..	2,762,758	2,674,036	5,436,794

2. **Growth during last Four Decennia.**—The total increase of population of the Commonwealth between the Census of 3rd April, 1911, and that of 4th April, 1921, was 981,789, of which 449,723 were males and 532,066 were females, as compared with a total increase of 681,204, comprising 335,107 males and 346,097 females, for the preceding ten years. The population of each sex enumerated at the Censuses of 3rd April, 1881, 5th April, 1891, 31st March, 1901, 3rd April, 1911, and 4th April, 1921, was as follows :—

POPULATION OF COMMONWEALTH AT LAST FIVE CENSUSES.

(EXCLUSIVE OF FULL-BLOOD ABORIGINALS.)

Date of Census.	Males.	Females.	Persons.	(a) Masculinity.
3rd April, 1881	1,214,913	1,035,281	2,250,194	7.98
5th April, 1891	1,704,039	1,470,353	3,174,392	7.36
31st March, 1901	1,977,928	1,795,873	3,773,801	4.83
3rd April, 1911	2,313,035	2,141,970	4,455,005	3.84
4th April, 1921 (b) ..	2,762,758	2,674,036	5,436,794	1.63

(a) Excess of males over females per 100 of population.

(b) Preliminary totals only ; subject to revision.

The increases in the populations of the several States and Territories during the past four intercensal periods have been as follow :—

INTERCENSAL INCREASES IN THE TOTAL POPULATION.

State and Territory.	1881-1891.		1891-1901.		1901-1911.		1911-1921.	
	Numerical.	Per cent.	Numerical.	Per cent.	Numerical.	Per cent.	Numerical.	Per cent.
N.S. Wales ..	(a) 374,129	49.90	(a) 230,892	20.54	(a) 293,602	21.67	453,029	27.51
Victoria ..	278,274	32.30	61,230	5.37	114,481	9.53	215,978	16.42
Queensland ..	180,193	84.39	104,411	26.52	107,684	21.62	151,821	25.06
South Australia ..	39,119	14.15	42,813	13.57	50,212	14.01	86,778	21.24
West Australia ..	20,074	67.57	134,342	269.86	97,990	53.22	50,099	17.76
Tasmania ..	30,962	26.76	25,808	17.60	18,736	10.86	22,666	11.85
N. Territory ..	1,447	41.93	(b) -87	(b) -1.78	(b) -1,501	(b) -31.20	560	16.92
F. Territory ..	..	..	..	..	..	..	858	50.06
Commonwealth	924,198	41.07	599,409	18.88	681,204	18.05	981,789	22.04

(a) Including Federal Territory.

(b) Decrease.

For the Commonwealth as a whole, the increase in population during the period 1911-1921 was greater by 300,585 than that for the period 1901-1911, the rate of increase being 22.04 per cent. for 1911-1921, as against 18.05 for 1901-1911. The former corresponds to an increase of 1.67 per cent. per annum, the latter to an increase of 2.03 per cent. per annum.

As regards the separate States, the numerical increases in the case of New South Wales, Victoria, Queensland, South Australia, and Tasmania were greater for 1911-1921 than for 1901-1911. On the other hand, Western Australia experienced greater

numerical increases in the earlier than in the later decennia. The Northern Territory, which exhibited an actual loss of population in 1891-1901 and 1901-1911, experienced its first increase since the 1881-1891 decennium during the period 1911-1921. In the matter of rates of increase per cent. New South Wales, Victoria, Queensland, South Australia, and Tasmania were higher in 1911-1921 than in 1901-1911, while Western Australia was considerably lower.

§ 12. Naturalization.

1. **The Commonwealth Act.**—The Commonwealth Constitution empowers the Commonwealth Parliament to make laws with respect to "Naturalization and Aliens," a power which was exercised when the "Naturalization Act of 1903" was passed. This Act was assented to on 13th October of that year, and came into force on 1st January, 1904, in accordance with a proclamation by *Gazette* of 14th November, 1903.

In 1917 it was considered advisable to make more stringent the provisions of the Act, notably with reference to the question of dual nationality, circumstances arising out of the war having clearly demonstrated that while many naturalized persons of enemy birth were enjoying the rights, privileges, and protection guaranteed to Australian citizens, they were still pledged to allegiance to their Mother Country. As a result the "Naturalization Act 1917," containing a number of new and important provisions, was passed by Parliament and was assented to on 20th September of the same year.

In 1920, an Act was passed, which superseded the Acts passed in 1903 and 1917. The purpose of this measure, which was known as the "Nationality Act 1920," and which came into operation on 1st January, 1921, was to consolidate and amend the law regarding naturalization. The most important provision of this Act was the adoption of Part II. of the "British Nationality and Status of Aliens Act 1914," which conferred on any person naturalized under the Act the rights of a British subject, not only in the Commonwealth but also in Great Britain and in any other parts of the Empire which have adopted Part II. of the British Act.

Prior to the passing of the original Act the issue of certificates of naturalization had been a function of the State Governments, carried out under Acts of the several State Legislatures, which, however, did not differ materially from each other, and furnished the basis on which the Commonwealth Act was drafted. From 1st January, 1904, when the Commonwealth Act of 1903 became operative, the right to issue certificates of naturalization in the Commonwealth has been vested exclusively in the Federal Government, but all certificates or letters of naturalization issued under the several State Acts prior to that date entitle the recipients to be deemed to be naturalized under the Commonwealth Act.

The grant of a certificate of naturalization entitles the recipient to all the rights and privileges, and renders him subject to all the obligations of a natural-born British subject, with the exception that where, by any Commonwealth or State Constitution or Act, a distinction is made between natural-born British subjects and naturalized persons, such distinction shall hold good in the case of all persons naturalized under the Commonwealth Act.

The "Nationality Act 1920" provides that applications for certificates of naturalization must be made to the Governor-General, the qualifications required in an applicant being :—

- (i) Residence in Australia continuously for not less than one year immediately preceding his application for naturalization, and previous residence, either in the Commonwealth or in some other part of His Majesty's dominions, for a period of four years within the last eight years before the application.
- (ii) Good character and an adequate knowledge of the English language.
- (iii) Intention to settle in the British Empire.

The applicant is required to furnish the following particulars in support of his application :—

His own statutory declaration stating—

- (a) Name ; (b) Age ; (c) Birthplace ; (d) Occupation ; (e) Residence ;
- (f) Length of residence in the British Empire ; (g) Intention to settle in the British Empire ; (h) Such other particulars as are prescribed.

He must also furnish :—

- (i) Newspapers containing copies of an advertisement, as prescribed, of his intention to seek naturalization.
- (ii) Certificates of character from three natural-born British subjects, two of whom must be householders, and the third a Justice of the Peace, Postmaster, State School Teacher, or Police Officer.
- (iii) Satisfactory evidence that he has an adequate knowledge of the English language.

Any person may make representation by statutory declaration with regard to an applicant for naturalization. The contents of such declaration will not be disclosed other than with the consent of the person making the declaration, except for the purpose of a prosecution for perjury.

The Governor-General in Council may, in his absolute discretion, and with or without assigning any reason, grant or withhold a certificate of naturalization as he thinks most conducive to the public good ; but the issue of a certificate of naturalization will not be effected until the applicant furnishes a certificate signed by a Justice of the High Court of Australia, a State Judge, or a Magistrate, certifying that he has renounced allegiance to the country of which he was a subject at the time of his application for naturalization, and that he has taken an oath or affirmation of allegiance to the Crown in accordance with the Constitution. The grant of a certificate is made free of charge.

The Governor-General may, in his absolute discretion, in any special case in which he thinks fit, grant a certificate of naturalization to any minor, whether or not the conditions required by this Act have been complied with.

In addition to naturalization by grant of certificate, the Act makes provision for—

- (i) Naturalization by marriage.
- (ii) Naturalization by inclusion in certificate granted to parent.

The former relates to the case of a woman who is not herself a British subject, but is married to a British subject ; the latter to that of a person who is not a natural-born British subject, but who being under 21 years of age has, at the request of the parent, been included in the certificate granted to him by the Commonwealth. In each instance the person concerned is deemed to be naturalized under the Commonwealth Act.

The Governor-General may revoke any certificate of naturalization where—

- (i) it is proved that the certificate has been obtained by false representation or fraud, or by concealment of material circumstances, or that the person to whom the certificate is granted has shewn himself by act or speech to be disaffected or disloyal to His Majesty.
- (ii) he is satisfied that the person to whom the certificate was granted either—
 - (a) has during the war in which His Majesty is engaged unlawfully traded or communicated with the enemy or with the subject of an enemy State, or been engaged in or associated with any business which is to his knowledge carried on in such manner as to assist the enemy in such war ; or

- (b) has within five years of the date of the grant of the certificate been sentenced by any court in His Majesty's dominions to imprisonment for a term of not less than twelve months, or to a term of penal servitude, or to a fine of not less than one hundred pounds; or
- (c) was not of good character at the date of the grant of the certificate; or
- (d) has since the date of the grant of the certificate been for a period of not less than seven years ordinarily resident out of His Majesty's dominions otherwise than as a representative of a British subject, firm or company carrying on business, or an institution established in His Majesty's dominions, or in the ordinary service of the Crown, and has not maintained substantial connexion with His Majesty's dominions; or
- (e) remains according to the law of a State at war with His Majesty a subject of that State;
- and that (in any case) the continuance of the certificate is not conducive to the public good.

Where a wife and any minor children have acquired British nationality under the certificate issued to the husband and father and such certificate is subsequently revoked, the wife and children remain British subjects unless the Governor-General otherwise declares, or unless they themselves elect to make a declaration of alienage.

In accordance with the Act, a list of persons naturalized, with their addresses, is published in the *Commonwealth Gazette* from time to time.

The administration of the Act is carried out by the Home and Territories Department, and the Governor-General is authorised to make such regulations as are necessary or convenient for giving effect to the Act.

2. **Statistics of Naturalization.**—Particulars relative to the nationalities of the recipients of certificates of naturalization issued under the Act during each of the five years 1917 to 1921, and to the countries from which such recipients had come, are shewn in the following table :—

COMMONWEALTH NATURALIZATION CERTIFICATES GRANTED, 1917 TO 1921.

Nationalities of Recipients.	No. of Certificates Granted.					Countries from which Recipients of Commonwealth Certificates had come.	No. of Certificates Granted.				
	1917.	1918.	1919.	1920.	1921.		1917.	1918.	1919.	1920.	1921.
Italian ..	35	8	34	139	182	Great Britain ..	102	82	66	100	245
Swedish ..	57	38	32	37	48	Italy ..	30	9	29	128	179
Danish ..	65	52	50	55	57	Germany ..	36	13	13	59	342
Russian ..	50	30	20	18	126	America (North) ..	42	12	28	52	87
German ..	48	15	11	67	459	Sweden ..	21	12	8	20	22
Norwegian ..	54	36	17	24	38	Denmark ..	32	19	18	27	26
Greek ..	7	21	49	80	140	Norway ..	25	22	10	15	14
American (North) ..	24	..	11	22	29	Greece ..	5	13	35	43	82
Dutch ..	33	21	10	27	14	France ..	15	10	8	18	40
Swiss ..	24	12	14	29	16	Egypt ..	4	1	10	24	66
French ..	27	11	8	22	41	America (South) ..	5	5	..	..	..
Spanish ..	11	3	6	20	17	Holland ..	18	5	..	..	..
Belgian ..	4	5	4	5	5	Russia ..	7	4	..	..	56
Rumanian ..	..	2	1	2	7	South Africa ..	7	5	9	15	25
Portuguese ..	4	2	1	8	1	Belgium ..	7	7	6	16	31
American (South) ..	..	..	..	..	1	New Zealand ..	6	6	6	15	23
Austrian ..	1	1	2	2	29	Switzerland ..	15	3	6	11	10
Mexican ..	..	..	1	..	..	Spain ..	4	2	..	10	8
Chinese ..	..	..	1	..	2	New Caledonia ..	8	1	..	..	..
Serbian ..	1	4	..	2	2	Argentina ..	3	1	6	..	..
Syrian ..	..	..	1	..	96	Canada ..	7	2	..	..	..
Polish ..	..	..	16	17	52	Finland ..	4	..	..	..	..
Finnish ..	..	..	16	37	34	Other Countries ..	40	27	37	76	255
Others ..	..	..	..	21	115						
Total ..	445	261	295	629	1,511	Total ..	445	261	295	629	1,511

The following table furnishes particulars concerning the States in which the recipients of Commonwealth certificates of naturalization during the years 1909 to 1921 were resident :—

NATURALIZATION CERTIFICATES GRANTED BY COMMONWEALTH, 1909 TO 1921.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Northern Territory.	C'wealth.
1909 ..	644	507	378	600	221	81	..	2,431
1910 ..	665	329	333	299	187	36	..	1,849
1911 ..	565	491	469	282	248	22	..	2,077
1912 ..	565	295	464	343	243	35	..	1,945
1913 ..	603	434	525	355	342	30	2	2,291
1914 ..	1,327	1,202	625	552	520	43	3	4,272
1915 ..	411	378	345	260	191	16	1	1,602
1916 ..	260	211	152	82	115	20	2	842
1917 ..	131	131	84	45	46	7	1	445
1918 ..	85	70	59	19	25	3	..	261
1919 ..	103	70	67	21	29	5	..	295
1920 ..	208	136	167	50	61	5	2	629
1921 ..	461	309	427	165	135	12	2	1,511

3. **Census Particulars.**—On the Personal Card used at the Census of 3rd April, 1911, an inquiry as to naturalization was made, all persons who were British subjects by naturalization being required to indicate the fact by inserting the letter N in the place provided for the purpose on the card. In addition, in checking the cards in the Census Bureau, instructions were given that cases of women naturalized by marriage to British subjects, and of children naturalized by residence with parents who have become British subjects, should be duly taken into account by the insertion of the letter N if originally omitted. The results of the tabulation will be found in the following table :—

NUMBER OF NATURALIZED BRITISH SUBJECTS RECORDED AT THE AUSTRALIAN CENSUS OF 3rd APRIL, 1911.

Particulars.	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	North-ern.	Federal.	
Males ..	11,333	8,445	11,025	4,141	3,544	734	457	4	39,683
Females ..	2,808	2,182	5,562	1,763	646	293	13	1	13,268
Persons ..	14,141	10,627	16,587	5,904	4,190	1,027	470	5	52,951

Corresponding particulars for the Census of 1921 are not yet available.

§ 13. Graphical Representation of Growth of Population.

1. **General.**—The nature of the fluctuations of the numbers representing (a) total population, or those representing (b) births and deaths from year to year, or (c) the natural increase, i.e., the difference of births and deaths, or (d) the net immigration, all of which taken together make up the element of increase of total population, cannot be readily discerned from mere numerical tables. It has been deemed desirable, therefore, to furnish a series of graphical representations, shewing in some cases the characteristics

of these elements from 1788 to 1921, and in others from 1860 to 1921. The graphs furnish at a glance a clear indication of the changes taking place, and of their significance from year to year. The great importance of such representations is that only by their means can the most recent changes be justly apprehended, either in their relation to the past, or their meaning for the future.

2. **Graphs of Total Population** (page 1067).—These graphs furnish interesting evidence of the comparatively slow rate of growth of the several States and of the Commonwealth as a whole, during the period from the foundation of settlement in 1788 until 1832. From that year onwards to 1851, a moderately increased rate of progress was experienced. In 1851 gold was discovered in Australia, and the effect of this discovery on the population of the Commonwealth is shewn by the steepness of the curves for New South Wales and Victoria, and for the Commonwealth, from this point onwards for a series of years. The sudden breaks in the continuity of the curves for New South Wales indicate the creation of new colonies, and their separation from the mother colony. Thus, Tasmania came into existence in 1825, Victoria in 1851, and Queensland in 1859. Owing to the extensive gold discoveries in Victoria, its population increased so rapidly that in 1854 its total passed that of New South Wales, and remained in excess until 1892, when the mother State again assumed the lead, which it has since maintained. The rate of increase in New South Wales is large, but the State is still only sparsely populated. A feature of the New South Wales curve is its comparative regularity as compared with that of Victoria, the population of which State increased with great rapidity from 1851 to 1860, less rapidly from 1861 to 1878, with a further period of increased rapidity from 1878 to 1891, and a period of very slow and fluctuating growth from the latter year to 1914. In 1915 and 1916 the population decreased, but since that year increases were again recorded. Victoria, however, has a population density more than double that of Tasmania, and nearly three times that of New South Wales.

In the case of Queensland, the curve indicates a rate of growth which, though varying somewhat, has on the whole been satisfactory, and at times very rapid. Periods of particularly rapid increase occurred from 1862 to 1865, from 1873 to 1877, and from 1881 to 1889. With the exception of the year 1916 the population of this State has always increased each year up to 1921. The population of Queensland passed that of Tasmania in 1867, and that of South Australia in 1885. The population density of Queensland is about one-fifteenth of that of Victoria.

The curve for South Australia indicated that with fluctuations more or less marked, the population increased at a moderate rate from the date of the effective settlement of the colony in 1836 until 1884, and that from that point onwards, a diminished rate of increase was experienced, with slight decreases in 1886, 1888, 1900, 1902, 1915, and 1916. In 1917, 1918, 1919, 1920, and 1921 increases were again recorded. The population of South Australia passed that of Tasmania in 1852. Its density is nearly one and one-fifth of that of Queensland, about one-fifth of that of New South Wales, and about one-fourteenth of that of Victoria.

The curve for Western Australia indicates that the population increased regularly but very slowly until 1886, when the discovery of gold in the Kimberley division caused an influx of population. The effects of the further rich discoveries of gold in the Murchison and Coolgardie districts in 1891 and 1892, are clearly shewn in the rapid increase of population in those and subsequent years to 1897. Two years of retarded progress then occurred, followed by a satisfactorily rapid rate of increase from 1899 to 1906, a slight decline in 1907, and a further advance in 1908 and subsequent years to 1914. Decreases occurred in 1915 and 1916, with increases in 1917, 1918, 1919, 1920, and 1921. The population of Western Australia became greater than that of Tasmania in 1899. Its density is little more than one-fourth of that of South Australia, one-third of that of Queensland, one twentieth of that of New South Wales, and about one fifty-second of that of Victoria.

The Tasmanian population curve indicates a comparatively slow rate of growth throughout. Its most noticeable feature is a retardation in increase in 1852 and subsequent years, brought about by the discovery of gold on the mainland. The population density of Tasmania is about 21 per cent. greater than that of New South Wales, and a little less than half of that of Victoria.

3. Graphs for Commonwealth of Male and Female Population (page 1068).—These curves shew the relative growth of male and female population of the Commonwealth, and it will be seen that the former are far more liable to marked fluctuations than the latter. The curves representing an increase of population on the basis of the United States rate for 1790 to 1860, indicate that on the whole the female rate of increase in the Commonwealth has been a fairly satisfactory one, and that from 1860 to 1893 the same might be said of the male population. From 1893 onwards, however, the male population of the Commonwealth has fallen considerably below this rate.

Although the rate of increase of the female population from 1860 onwards is on the whole very satisfactory, it should be noted that the total number at the beginning of this period was relatively very small, and that from 1894 onwards there is a falling-off in the rate of increase, similar to that experienced in the case of males.

4. Graphs for each State of Male and Female Population (page 1069).—These graphs shewing the relative progress in male and female population for each of the States, disclose the fact that in all cases the female population is much less liable to marked fluctuations than the male, and further, that in cases where rapid increases have taken place in the latter, a similar, but much more gradual, increase is in evidence in the former, commencing usually, however, somewhat later than in the case of the males. A comparison of the graphs of each of the States with that of the Commonwealth shews that the fluctuations in the latter case are smaller than in the former. This is largely due to internal migrations of the male element of the population, brought about by various causes, amongst which mining developments figure prominently.

5. Graphs for Natural Increase of Population, Commonwealth and States (page 1072).—The graphs indicate that, with the exception of certain marked variations, the natural increase of the population of the Commonwealth, *i.e.*, the excess of births over deaths, advanced with fair rapidity from 1860 to 1892, in which year it attained its maximum, and then fell rapidly till 1898. A subsequent rise to 1900 was followed by a continuous fall for the three years succeeding, *viz.*, to 1903. The recovery shews a fairly rapid rise to 1909, during which year the natural increase was 16.35 per 1,000 of mean population. In succeeding years a correspondingly high rate was maintained with minor fluctuations until 1914, when a record of 17.54 was obtained. In 1915 and 1916 the rate declined to 16.59 and 15.74 respectively, but improved to 16.71 in 1917. In 1918 it declined to 15.16, and in 1919 a further heavy decline to 10.96 was experienced. The rate for 1920 was 15.12. In 1912 a rate of 17.42 was obtained; this was, however, an over-statement of the true natural increase for the year, owing to the fact that the introduction of "Maternity Allowances" in 1912 resulted in expediting the registration of births. The years in which the natural increase of the Commonwealth was at its highest were 1865, 1871, 1881, 1892, 1900, and 1914, and the years of extraordinarily low rates of natural increase were 1866, 1875, 1882, 1898, 1903, and 1919. The lower rate of 1898 was due in large measure to a phenomenally high death rate experienced in practically all the States in that year, when an epidemic of measles was prevalent throughout the Commonwealth. The low rate of 1903 was brought about by the low birth rates and the high death rates which accompanied the drought of 1902-3, while the advance in the rate of natural increase since 1903 has been collateral with the marked improvement in material conditions experienced throughout the Commonwealth during that period. The very low rate for 1919 was due to a low birth rate and a very high death rate, caused by an epidemic of influenza.

6. Graphs shewing Total Increase of Population (pages 1070 and 1071).—The graphs disclose the fact that the most notable years of large total increases of population of the Commonwealth as a whole were 1864, 1877, 1883, 1888, 1909, 1910, 1911, 1912, and 1919. The total increase for 1912 was higher than for any year since 1883, while that for 1919 was the highest on record. The years in which low total increases were noticeable were 1861, 1867, 1872, 1878, 1889, 1893, 1898, and 1903. The decreases in the years 1915 and 1916 are a direct effect of the war. The great increase in 1919 was due very largely to the return of soldiers after the cessation of hostilities in Europe.

The graph for New South Wales indicates a high total increase of population between 1876 and 1894, advancing to a maximum in 1883, and then declining to 1901. From the latter year onwards to 1907 an advance in the total increase was in evidence, followed by a decline in 1908, and a recovery in 1909, which was maintained in subsequent years to 1912. In 1913, 1914, and 1915 the figures fell continuously, followed in 1916 by a decrease, and a rapid increase since 1917.

Some features of the graph shewing the Victorian total increase are the height attained in 1864, 1870, 1888, 1901, and 1912, the smallness of the increase for the years 1861 and 1875, and the decrease for 1896, 1902, and 1903. The increase fell off in 1913 and 1914 and a decrease was experienced in 1915 and 1916, followed by an increase in 1917 and the following years.

For Queensland it will be seen that the years of high total increases were 1863, 1875, 1883, 1895, 1901, 1909, 1910, 1911, 1913, and 1919 while the years in which these were at very low level were 1869, 1878, 1891, and 1903. In 1914, 1915, and 1916 there was a progressive decline, followed by an increase in 1917, 1918, 1919, 1920, and 1921.

In South Australia the total increases were exceptionally high in 1865, 1876, 1877, 1878, 1883, 1892, 1908, 1910, 1911, 1912, and 1919, and correspondingly low in 1870, 1885, 1896, and 1903, while actual decreases took place in 1886, 1888, and 1902. In 1913 there was a slight decline in the total increase, followed by decreases in the years 1914, 1915, and 1916, and increases from 1917 to 1921.

In Western Australia the total increase graph indicates no very marked advance until about 1884, from which it rises somewhat rapidly to 1886, and then declines to 1888. This is followed by an exceedingly rapid rise to 1896, and a subsequent fall to 1899, succeeded by a further rise to 1902, and a fall thereafter to 1907, followed by a rise to 1911, a further fall in 1912, and a rise in 1913. Decreases took place in 1888, 1907, 1914, 1915, and 1916.

In the case of the Tasmanian graph, indications of a very varied total increase are in evidence, the principal high points being those for the years 1887, 1891, 1897, 1902, 1907, 1912, 1913, and 1919 while actual decreases were experienced in 1874, 1875, 1892, 1906, 1911, 1914, 1915, and 1916.

7. Graphs shewing Masculinity of Population, Commonwealth and States (page 1073).—These graphs furnish information concerning the variations which have taken place in the relative numbers of males and females in the populations of the Commonwealth and the several States during the years 1796 to 1921, and incidentally serve to indicate special features of growth in the respective populations. In general it will be noted that in recent years there has been a marked tendency towards a masculinity of zero, that is, to a condition in which the numbers of males and females in the population were equal, but that with the exception of Victoria and South Australia the masculinity had never fallen below zero prior to the outbreak of war. In 1916 and 1917, however, it fell below zero in all the States except Queensland and Western Australia, and in the Commonwealth as a whole. In 1918 the rates were below zero in the Commonwealth as a whole, and in the States of New South Wales, Victoria, and South Australia. During the year 1920, the Commonwealth as a whole, and all the States except Victoria and South Australia, had an excess of males. In 1921, in every State except Victoria there were more males than females. The early experience of the Commonwealth exhibits a fairly rapid decline in masculinity to 1812, followed by an even more rapid rise to 1828 and a subsequent fall with a more gentle slope to 1850. From 1850 onwards the decline in masculinity has been fairly continuous, though subject to fluctuations. It should be noted that the great variations of the earlier as compared with the later years have been due to a considerable extent to the fact that, owing to the smallness of the population, any considerable influx of male immigrants had a marked effect in increasing the masculinity of the population, while an influx of female immigrants tended to considerably reduce it. Two points of special interest in the graphs of the separate States are the maxima attained in 1852 in Victoria and 1896 in Western Australia, as the result of extensive male immigration consequent on the gold discoveries in the respective States.

APPENDIX.

Recent information and returns which have come to hand since the various sections of this book were sent to press are given hereunder.

SECTION IV. POPULATION.

§ 1. Commonwealth Population.—Its Distribution and Fluctuation.

1. Present Population, p. 1046.—The following table shews the estimated population of each State and Territory and for the Commonwealth on 30th June, 1922 :—

ESTIMATED POPULATION ON 30th JUNE, 1922.

Particulars.	States.						Territories.		C'wealth.
	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Nor. Terr.	Fed. Terr.	
Males ..	1,093,927	776,011	414,488	253,463	180,703	107,593	2,623	1,491	2,830,299
Females ..	1,053,728	794,629	370,961	251,606	158,798	105,807	1,040	1,101	2,737,670
Total ..	2,147,655	1,570,640	785,449	505,069	339,501	213,400	3,663	2,592	5,567,969

SECTION VIII. AGRICULTURAL PRODUCTION.

§ 4. Wheat.

7. The Australian Wheat Marketing Scheme, p. 251.—The termination of the Australian Wheat Marketing Scheme in 1921 necessitated the creation of new machinery for the disposal of the 1921-22 harvest. The time was not considered opportune for a complete return to pre-war selling conditions, and Voluntary Pools, controlled by Committees appointed by the growers, were established in New South Wales, Victoria, and South Australia. The marketing of the Western Australian wheat was conducted by a Compulsory Government Pool, administered by the Minister for Agriculture, who had the assistance of an Advisory Committee and of a wheat expert as general manager.

The quantities of wheat received by the different Pools were as follows :—

Particulars.	Unit.	N.S.W.	Victoria.	S. Aust.	W. Aust.
Wheat received	Bushel	22,784,329	32,100,000	7,842,788	11,788,162
Percentage of marketable wheat	%	58	78	36	96

Advances were made to the growers on delivery of their wheat to the Pools, and the usual certificates were issued entitling holders to further payments when finance could be arranged. The amounts so advanced in the various States up to the end of August, 1922, were as below :—

			<i>s.</i>	<i>d.</i>
New South Wales	..	..	4	6 less rail freight
Victoria	..	..	4	4
South Australia	..	..	4	6
Western Australia	..	..	4	10

Arrangements are being completed for a further payment of 5d. per bushel by the South Australian Pool in September, and of 6d. per bushel by the Victorian Pool in October; while it is anticipated that final payments amounting to 7d. and 5½d. will eventually be made by the New South Wales and Western Australian Pools respectively, which will give an average return to the farmers in these two States of 4s. 8d. and 4s. 10d. per bushel at country railway stations.

The local and oversea sales of wheat effected by the Pools to date realized the following average prices per bushel :—

			<i>s.</i>	<i>d.</i>
New South Wales	..	..	5	5.50
Victoria	..	..	5	4.14
South Australia	..	..	5	4.06
Western Australia	..	..	5	5.00

SECTION XII.

MINES AND MINING.

§ 1. The Mineral Wealth of Australia.

3. Value of Production during 1921, p. 326.—The following table gives the value of Commonwealth Mineral Production in 1921 :—

COMMONWEALTH MINERAL PRODUCTION, 1921.

Minerals.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	N. Ter.	C'wealth.
	£	£	£	£	£	£	£	£
Gold ..	271,302	554,087	214,055	13,933	2,935,693	28,311	1,299	4,018,680
Silver and Lead	1,327,364	862	54,188	240	67,521	89,817	..	1,539,992
Copper	41,267	..	168,556	106,370	24,601	463,163	..	803,957
Iron ..	651,425	..	5,976	587,267	..	..	..	1,244,668
Tin ..	163,451	11,961	98,471	..	6,485	130,257	7,793	418,418
Wolfram	..	..	280	..	..	676	9,752	10,708
Zinc ..	283,455	..	..	..	..	..	..	283,455
Coal ..	9,078,388	634,397	831,483	..	407,117	63,446	..	11,014,831
Other ..	1,263,924	17,476	122,885	196,849	22,347	47,097	159	1,670,737
Total	13,080,576	1,218,783	1,495,894	904,659	3,463,764	822,767	19,003	21,005,446

NOTE.—Gold, valued at £5.30166 per fine oz.

SECTION XV.

COMMERCE.

§ 2. Commonwealth Legislation affecting Foreign Trade, p. 457.

32. Customs Tariff 1922 (No. 16 of 1922).—Amends the Customs Tariff of 1921 by the removal or the reduction of duties on the following items :—wire (gauges No. 8-14, both inclusive) for use as fencing wire without further manufacture, or for such manufacturing purposes as may be prescribed by Departmental By-Laws; iron and steel, plate and sheet, viz :—corrugated galvanized, galvanized not corrugated, and corrugated not galvanized; wire netting; traction engines, n.e.i.; and by increasing the duty on alternating current-recording Watt-hour meters.

33. Customs Tariff (Sugar) 1922 (No. 32 of 1922).—Amends the Customs Tariff of 1921 by increasing the Customs Duties on Sugar.

34. Customs Tariff (New Zealand Preference) (No. 2) 1922 (No. 36 of 1922).—Extends the list of items of New Zealand manufacture which are to receive special tariff treatment on importation into the Commonwealth.

35. Customs Act 1922 (No. 19 of 1922).—Amends the Customs Act 1901-1920 with regard to the method of ascertaining the value for duty of imported goods, and the presentation of invoices. Under the amending Act the value for duty is defined as follows :—

(1) When any duty is imposed according to value, the value for duty shall be the sum of the following :—

- (a) (i) the actual money price paid or to be paid for the goods by the Australian importer plus any special deduction, or
- (ii) the current domestic value of the goods, whichever is the higher;
- (b) all charges payable or ordinarily payable for placing the goods free on board at the port of export; and
- (c) ten per centum of the amounts specified under paragraphs (a) and (b) of this sub-section.

(2) In the case of goods consigned for sale in Australia the value for duty shall be the amount which would be the value for duty if the goods were at date of exportation sold to an Australian importer instead of being consigned for sale in Australia.

(3) In this section—

“Current domestic value” means the amount for which the seller of the goods to the purchaser in Australia is selling or would be prepared to sell for cash, at the date of exportation of those goods, the same quantity of identically similar goods to any and every purchaser in the country of export for consumption in that country; and

“Special deduction” means any discount or other deduction allowed to the Australian importer which would not ordinarily have been allowed to any and every purchaser at the date of exportation of an equal quantity of identically similar goods.

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